ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Informatics
Information Systems
Electrical Engineering

Provided by
Institut Teknologi Kalimantan, Balikpapan

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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 Committee (TC)[2]
Sarjana Teknik (S.T.)	Bachelor of Engineering	ASIIN	BAN-PT (grade B, until 2023)	02
Sarjana Komputer (S.Kom)	Bachelor of Computer	ASIIN	BAN-PT (grade B, until 2023)	04
Sarjana Komputer (S.Kom)	Bachelor of Computer	ASIIN	BAN-PT (grade B, until 2023)	04
Date of the contract: 04.04.2022 **Submission of the final version of the self-assessment report:** 30.09.2022 **Date of the onsite visit:** March 1st – 2nd 2023 **at:** Balikpapan, ITK campus				
Peer panel: Prof. Dr. Madhukar Chandra, University of Technology Chemnitz Prof. Dipl. Des. Julia Schnitzer, Brandenburg University of Applied Sciences Prof. Dr. Paul Grimm, Hochschule Darmstadt University of Applied Sciences Moko Prijambodo, Pertamina Hulu Mahakam Joanna Darmawan, student at the Institut Teknologi Sepuluh Nopember				
Representative of the ASIIN headquarter: David Witt				
Responsible decision-making committee: Accreditation Commission				
Criteria used: European Standards and Guidelines as of 15.05.2015				

[1] ASIIN Seal for degree programmes
[2] TC: Technical Committee for the following subject areas: TC 03 - Civil Engineering, Geodesy and Architecture

ASIIN General Criteria, as of 28.03.2014 Subject-Specific Criteria of Technical Committee 04 – Informatics/Computer Science as of 29.03.2018 Subject-Specific Criteria of Technical Committee 02 – Electrical Engineering/Information Technology as of 09.12.2011	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Electrical Engineering	Sarjana Teknik (S.T.) / Bachelor of Engineering (B.Eng)	Power systems, Electronics, Controls, Telecommunication, Computer	6	Full time	/	8 semesters	144 SKS (equivalent to 218 ECTS)	Annually/2012
Information Systems	Sarjana Komputer (S.Kom) / Bachelor of Computer	Foundations of information Systems, Data / information management, IT infrastructure & security, IS project management, System analysis and design, IS management & strategy, Enterprise architecture	6	Full time	/	8 semesters	144 SKS (equivalent to 218 ECTS)	Annually/2015
Informatics	Sarjana Komputer (S.Kom) / Bachelor of Computer	Intelligent systems, Computer networks, Software engineering	6	Full time	/	8 semesters	144 SKS (equivalent to 218 ECTS)	Annually/2017

For the Bachelor's degree programme Electrical Engineering the institution has presented the following profile in the self-assessment report:

"**Vision**: 'To become a centre of education and innovation in electrical engineering that actively contributes to the acceleration of national development, specifically in Kalimantan in 2025.'

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

Mission:

1) To produce graduates in electrical engineering who are competent, qualified with integrity, innovative, and have an entrepreneurial spirit.
2) To create an academic environment that encourages the growth of sustainable innovation by actively carrying out research and scientific development in electrical engineering.
3) To establish and maintain partnerships with academic institutions, government agencies, and related industries to synergise by forming and implementing collaborative programs."

For the Bachelor's degree programme Information Systems the institution has presented the following profile in the self-assessment report:

"**Vision**: 'To become a centre of human resource development that impacts the development of Kalimantan through the use of information technology in 2025.'

Mission:

1) Organising higher education in Information Systems to produce graduates who are recognised at national and international levels.
2) Organising innovative and creative research for the development of Information Systems.
3) Organising service activities to the public related to Information Systems.
4) Develop cooperation with government agencies and industry in the field of Information Systems."

For the Bachelor's degree programme Informatics the institution has presented the following profile in the self-assessment report:

"**Vision**: 'To become an excellent study programme in the field of Informatics that is innovative and creative in the area of Kalimantan in 2025.'

Mission:

1) Organising an effective, efficient, and sustainable education system to produce Informatics graduates.
2) Produce graduates who have competence in informatics and entrepreneurial spirit and can play a positive role at national and international levels.

3) Increase contributions and collaborations with various parties in society by developing products and services in Information Technology at the regional, national, and international levels."

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

Criterion 1.1 Objectives and learning outcomes of a degree programme (intended qualifications profile)

Evidence:

- Objective-module-matrices
- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Website
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The experts base their assessment of the learning outcomes on the information provided in the module descriptions and in the Self-Assessment Report of all three degree programmes under review. For all programmes, the Institut Teknologi Kalimantan (ITK) has described Programme Educational Objectives (PEO), Intended Learning Outcomes (ILO), and Qualification Profiles. The ILO of each degree programme are published on the programme's website. While the PEOs are developed based on the vision and mission of the university as well as the respective faculty and are rather general and concise, the ILOs describe in great detail the competences the students should acquire during their studies. By means of being published on the websites of the degree programmes, the PEOs and ILOs are easily accessible for students as well as other stakeholders. Furthermore, there are regular revision processes in place that take into account feedback by external and internal stakeholders. A minor curriculum adjustment is done every year whereas a major revision including consultations of stakeholders takes place every five years.

The experts refer to the Subject-Specific Criteria (SSC) of the Technical Committees Informatics/Computer Science and Electrical Engineering/Information Technology, the module descriptions as a basis for judging whether the intended learning outcomes of the three

degree programme as defined by ITK correspond with the competences as outlined by the SSC.

The experts note that the relationship between PEOs and ILOs has been established in a comprehensible and logical manner. The development of ILOs of the study programmes involves both internal and external stakeholders so that the curricula can be adapted and modified according to the needs of the industry and the graduates on a regular basis. For example, ITK regularly conducts surveys, through which the different stakeholders get the chance to assess the programmes and their main objectives and adapt them if necessary. Internal stakeholders include all of ITK members (students, teaching staff, and non-academic employees), while the external stakeholders include the industry, alumni, the government, and society.

For the Bachelor's degree programme Electrical Engineering, ITK defines the following intended learning outcomes:

1) "An ability to communicate effectively in oral and written manners with a range of audiences
2) An ability to solve complex problems and make informed judgments, which must consider the sustainability aspect as well as to utilise information technology and the potential of national resources with a global perspective.
3) An ability to collaborate effectively in a multidisciplinary and multicultural team whose members together provide leadership to achieve the objectives
4) An ability to apply Pancasila values, ethical and professional responsibilities
5) An ability to perform life-long learning and apply new knowledge as needed using appropriate learning strategies
6) An ability to identify, formulate and solve engineering problems using knowledge of mathematics, basic science and engineering science
7) An ability to apply engineering design to produce solutions that meet specified needs with consideration of technical standards, public health, safety, and welfare, as well as ease of application, and sustainable applications
8) An ability to design and conduct experiments in electrical engineering, as well as to analyze and interpret data to strengthen engineering judgments
9) An ability to utilize analysis tools based on information technology and computation, which are suitable for engineering activities in the field of electrical engineering
10) An ability to apply the latest methods, skills, and modern engineering tools, as needed in the field of electrical engineering."

ITK states that graduates of this study programme are capable of working in several professions, especially as engineers in electrical engineering and relevant fields, scientists, researchers, teachers/lecturers, government employee/staff and community leader or as entrepreneurs.

For the Bachelor's degree programme Information Systems, ITK defines the following intended learning outcomes:

1) "An ability to communicate effectively in oral and written manners with a range of audiences
2) An ability to solve complex problems and make informed judgments, which must consider the sustainability aspect as well as to utilise information technology and the potential of national resources with a global perspective.
3) An ability to collaborate effectively in a multidisciplinary and multicultural team whose members together provide leadership to achieve the objectives
4) An ability to apply Pancasila values, ethical and professional responsibilities
5) An ability to perform life-long learning and apply new knowledge as needed using appropriate learning strategies.
6) An ability to develop and evaluate information systems to support business goals
7) An ability to formulate data and information to support effective and efficient decision making in business and management context
8) An ability to design and evaluate infrastructure and technology while providing assurance for the information security
9) An ability to develop strategic management of IT in organisations
10) An ability to integrate and implement IT solutions in organisations."

ITK states that graduates of this study programme are capable of working in several professions, especially as IT Auditor, IT Project Manager, Business Analyst or Digital Entrepreneur.

For the Bachelor's degree programme Informatics, ITK defines the following intended learning outcomes:

1) An ability to communicate effectively in oral and written manners with a range of audiences

2) An ability to solve complex problems and make informed judgments, which must consider the sustainability aspect as well as to utilise information technology and the potential of national resources with a global perspective
3) An ability to collaborate effectively in a multidisciplinary and multicultural team whose members together provide leadership to achieve the objectives
4) An ability to apply Pancasila values, ethical and professional responsibilities,
5) An ability to perform life-long learning and apply new knowledge as needed using appropriate learning strategies.
6) An ability to understand mathematical concepts, statistics, discrete structures, data structures and algorithms, which solves various problems related to engineering with computational principles effectively and efficiently
7) An ability to implement and develop systems engineering by considering hardware and operating system capabilities to function optimally
8) An ability to apply concepts related to architecture, computer organisation, networks, and databases, which enables them to support system development.
9) An ability to analyse and implement the concepts of data science, intelligent systems, and computer vision in solving problems of food security, energy, maritime and smart cities.
10) An ability to integrate system development principles in the fields of artificial intelligence, embedded systems, or software, including system analysis and design, implementation and testing, as well as system quality assurance.
11) An ability to apply the concept of a digital start-up business based on information technology
12) An ability to apply professional ethics in the field of computer science."

ITK states that graduates of this study programme are capable of working in several professions, especially as Software Engineer, Digital Entrepreneur, Artificial Intelligence Engineer, Computer Scientist, or Data Scientist.

In the experts' opinion, the intended qualification profiles of all three degree programmes are clear, plausible and allow students to take up an occupation, which corresponds to their qualification. They learn that the graduates of ITK are much sought after in the labor market. The representatives of industry emphasize the high quality of the graduates of all programmes under review and students as well as graduates are satisfied with and well aware of their good job perspectives.

During the on-site visit, the experts are presented with written examinations and final theses to check the achievement of the learning objectives and the intended learning outcome. The experts conclude that although the content level of the final theses should be further enhanced, it still corresponds to the EQF 6 level at the present time. Therefore, the

experts are convinced that the intended learning objectives are adequately achieved. They therefore only recommend that the content level of the final theses be raised further on an ongoing basis and in the medium term.

In summary, the experts confirm that the three Bachelor's degree programmes adequately reflect level 6 of the European Qualification Framework (EQF). The programme learning outcomes of both programmes are consistent with the respective ASIIN Subject-Specific Criteria of the Technical Committees of Informatics/Computer Science and Electrical Engineering/Information Technology. They aim at the acquisition of specific competences and are well-anchored, binding and easily accessible to all stakeholders.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report
- Diploma Supplements

Preliminary assessment and analysis of the peers:
The titles of the degree programmes follow the rules for naming study programmes set by the Indonesian Ministry of Education. The experts hold the opinion that the English translation and the original Indonesian name of all three Bachelor's degree programmes, Electrical Engineering, Information Systems, and Informatics, correspond with the intended aims and learning outcomes as well as the main course language.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Academic regulations
- Module descriptions
- Objective-module-matrices
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The curricula of the three degree programmes are designed to comply with the programme objectives and learning outcomes and they are subject to constant revision processes (cf. chapter 1.1). As such, the curricula are reviewed regularly and commented on by students and teachers as well as by external stakeholders such as alumni or partners from government and the private sector. Regular changes are made to ensure that the curricula are up to modern standards. Besides the PEOs and ILOs defined by ITK itself, the curricula also take into account the Indonesian standards of higher education and the Indonesian national qualifications framework as well as the recommendations from industry. In the Self-Assessment Report and the curriculum for each programme, ITK describes how the PEOs and ILOs of each programme are to be achieved in the individual modules and thus explains the significance of each module for the programme as a whole. The curricula are reviewed by the experts in order to identify whether the described learning objectives can be achieved by the available modules. Course descriptions as well as matrices matching the general learning objectives and the module contents were provided for a detailed analysis.

The Bachelor's degree programme Electrical Engineering comprises 144 Indonesian credit points (SKS). The degree programme normally spans over eight semesters but can be completed in a maximum of fourteen semesters. Since 2020, the curriculum consists of 93 modules: 14 modules in the joint preparatory stage, 50 compulsory modules, 29 elective modules. The students of the study programme get an introduction to Electrical Engineering, Discrete and Engineering Mathematics, algorithm and programming, fundamentals of chemistry and physics, as well as basic Mathematics, Pancasila, Civics and languages (Indonesian and English) in the first two semesters. Over the course of the first six semesters, they take mandatory courses in the different areas of electrical engineering, such as digital circuits, electrical circuits, signal and systems, computer system architecture, power systems, electromagnetics, telecommunication, data communication, control systems, device programming, microprocessor and microcontroller systems, profession and engineering

ethics, and artificial intelligence. Moreover, in semesters 6 and 7, the students can choose from a wide range of electives and are able to specialise in one of the fields of power systems, control systems, electronics, telecommunication, and computer systems. The seventh semester also contains the course practical work. The students prepare their undergraduate thesis, which is written in the final semester, by drafting a topic and handing in a proposal. However, since 2020, the work on their final project starts in the seventh semester through proposal development in the Research Methodology course.

During the discussions, the experts want to know how many courses also include practical parts, as this is hardly reflected in the module descriptions. It turns out that practical parts are only included in at least some of the courses. The experts are of the opinion that more practical parts should be introduced. This opinion is also confirmed by the discussion rounds with the students and the industry representatives, who are also in favour of more practical parts. The expert group concludes that the Bachelor's degree programme Electrical Engineering would benefit from an increased emphasis on practical components. They propose that enhancing practical elements within the programme would foster a more comprehensive understanding and application of theoretical concepts, ultimately producing graduates with a more robust skill set aligned with industry demands.

The Bachelor’s degree programme Information Systems comprises 144 Indonesian credit points (SKS). The degree programme normally spans over eight semesters but can be completed in a maximum of fourteen semesters. Since 2020, the curriculum consists of 73 modules: 13 modules in the joint preparatory stage, 35 compulsory modules, 25 elective modules The courses in the first two semesters convey basic knowledge of management and organization, structured programming, discrete mathematics, statistics as well as algorithm and programming, mathematics, Pancasila, civics and languages (Indonesian and English). Courses on business intelligence, operating systems, software engineering, web programming, object oriented programming, user interface and user experience, project management, information technology, information systems security, and digital transformation and innovation are offered from the third to the sixth semester. The elective courses, through which the students can gain further insights in some of these areas, are spread out over semester 6, 7 and 8. The seventh semester also contains the thesis proposal as well as the internship. The students write their thesis in the eighth semester.

The Bachelor’s degree programme Informatics comprises 144 Indonesian credit points (SKS). The degree programme normally spans over eight semesters but can be completed in a maximum of fourteen semesters. Since 2020, the curriculum consists of 61 modules: 13 modules in the joint preparatory stage, 38 compulsory modules, 14 elective modules. The courses in the first two semesters convey basic knowledge of informatics, object oriented programming, digital systems, discrete mathematics, statistics as well as algorithm

and programming, mathematics, Pancasila, civics and languages (Indonesian and English). Over the course of the first six semesters, they take mandatory courses in the different areas of linear algebra, computer architecture, data structure, operating systems, software analysis and design, computer graphics, computer networks, graph and automated theory, web design, software implementation and testing, functional programming, artificial intelligence, machine learning and digital image processing. Moreover, in semesters 6 and 7, the students can choose from a wide range of electives covering contents of human and computer interaction, mobile device application development, data mining, and distributed systems. The seventh semester also contains the course practical work and the option of an internship as part of the elective modules. The students write their thesis in the eighth semester.

The experts want to know from the programme coordinators how they would describe their students' programming skills. They respond that students start with a solid foundation in algorithms and programming, with Python being the main programming language in the foundation course. In addition, in the second year, there is more emphasis on object-oriented programming. The experts point out that there is no module description that lists basic programming concepts such as loops or conditions. The responsible persons state that programming is covered in more depth in the second year, but it is quite possible that the module descriptions only reflect this superficially. However, as it could not be clearly presented to the experts in which courses sufficient fundamental programming skills are taught and these are currently not reflected in the module descriptions, they believe that this should be improved. Furthermore, during the discussions, the programme coordinators mentioned that they are even considering removing Python from the curriculum. The experts strongly advise against this, as they believe that students are already being taught relatively few coding skills at the moment and are in favour of increasing the proportion of programming courses. Therefore, the expert group is of the opinion that the two degree programmes Information Systems and Informatics should include a minimum of two fundamental applied programming courses. This requirement is based on the belief that a strong foundation in programming skills is crucial for students in these programmes. Once this content has been introduced, it should be explicitly outlined and reflected in the module descriptions of the respective modules.

With regard to the internships, the peers learn that the fieldwork practice or the so-called “practical work” in companies is mandatory in all three Bachelor’s degree programmes. It usually takes a total of 6 months which is valued by the students as this allows them to apply the skills they learned in the programmes in a real working environment. The students highlight that the university is very supportive in finding placements for the internship and that they are always encouraged to gain as much practical experience as possible.

The university has established useful guidelines for these internships and every student has one advisor at the company and one at the university to ensure that the work contributes to achieving the programme's learning outcomes. The assessment methods to evaluate this phase is comprehensive and includes a written report, a seminar and an oral test. To what extent ITK must formulate criteria for substituting the internship credits to the elective modules credits and make them accessible to students and other stakeholders will be further explained in chapter 2.2.

Furthermore, the experts discuss with ITK the ways in which the students can improve their English proficiency. They learn that in all three Bachelor's degree programmes English literature is used occasionally as can be seen from the literature suggested for the individual modules in the module descriptions. Students have the possibility to join the English study club, which is offered by the Language Centre. Students are also obliged to achieve the required TOEFL score in order to graduate from their studies. The experts appreciate these efforts.

Overall, the experts are in principle satisfied with the curricular structure of all three programmes. They see that the programmes are well structured and that the modules build on each other in a reasonable way, enabling the students to effectively reach the learning outcomes as laid down for the programmes as a whole.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Academic regulations
- Students handbook
- Websites
- Discussions during the audit

Preliminary assessment and analysis of the peers:
According to the Self-Assessment Report, admission of new students to ITK is possible via different modes of entry (national and local modes). The different modes of entry are designed not only to select the top-quality students from high schools, but also to provide opportunities for high school students from all over Indonesia, especially those from rural areas.

There are three different paths of admission into the two Bachelor's degree programmes under review:

1. National Selection of Higher Education or University (Seleksi Nasional Masuk Perguruan Tinggi Negeri, SNMPTN), a national admission system, which is based on the academic performance during high school.

2. Joint Selection of Higher Education or University (Seleksi Bersama Masuk Perguruan Tinggi Negeri, SBMPTN). This national selection test is based on the results of a test (UTBK) which is held every year for university candidates. It is a nationwide written test (subjects: mathematics, Bahasa Indonesia, English, physics, chemistry, biology, economics, history, sociology, and geography).

3. Integrated Independent Entrance Examination (SUMMIT). Students are selected based on criteria determined by ITK itself. It mainly follows the results of UTBK, but also considers other citeria such as achievements and motivation of the students.

In average, 50% of the students got their submission with regard to their school grades (SNMPTN), 40% by national examination (SBMPTN), and 10% by institution examination (SUMMIT ITK).

The tuition fees for the programmes are determined by the Ministry of Finance based on a proposal from ITK. There are different levels for these fees, depending on the parents' income. For students from underprivileged families, there is no tuition fee. Furthermore, there are various options for scholarships that cover the tuition fees.

The admission website informs potential students in great detail about the requirements and the necessary steps to apply for admission into the programmes. Since the rules are based on decrees by the ministry of education and on the university's written regulations, the peers deem them binding and transparent.

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

The experts consider criterion 1 not to be fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Objective-Module-Matrices
- Discussions during the audit
- Partnership agreements with other universities
- Overview of student's mobility

Preliminary assessment and analysis of the peers:
All three Bachelor's degree programmes under review are designed for four years and the students need to achieve 144 Indonesian Credit Points (SKS, which is roughly equivalent to 218 ECTS; cf. chapter 2.2 for more details). Roughly 90% of these credit points are awarded for compulsory, around 10 % for elective courses. Each semester is equivalent to 16 weeks, including 14 weeks of learning activities and two weeks of examination (midterm and final exams).

After analyzing the module descriptions and the study plans, the experts confirm that all three degree programmes under review are divided into modules and that each module is a sum of coherent teaching and learning units. All three programmes allow the students to define individual focuses through broad ranges of electives (see chapter 1.3 for more details). The students confirm that the structure of the programmes allow them to reach the learning outcomes within the regular duration (see chapter 2.2 for more details).

The experts notice that there are a number of quite small modules with only 2-3 credit points. They learn that this is due to some regulation by ITK and the government and that it is common in Indonesia to have overall smaller modules compared to the German (or European) standard. Overall, the experts regard the module structure to be adequate, also because all students confirm that they are used to having smaller modules and that this does not have negative implications on the overall workload (see chapter 2.2 for more details).

In summary, the experts gain the impression that the choice of modules and the structure of the curriculum ensure that the intended learning outcomes of the respective degree programme can be achieved.

International Mobility

The Self-Assessment report as well as the discussions make it very clear that international recognition is one of ITK's primary goals for the next years. The peers point out that international mobility, with regard to lecturers as well as students, is a key factor in these efforts.

The experts learn that the university already provides various mobility opportunities for students. These include semesters abroad, short programmes, internships, and international conferences. To foster these, there are cooperation agreements with hundreds of partner institutions worldwide, with a certain focus on Asia (for instance Malaysia, China, Japan), but also including many institutions in Europe and North America. Partly due to the COVID-19 pandemic, the number of students participating in mobility programmes in 2020 and 2021 was relatively low, but is expected to markedly increase again after the pandemic. A student and alumni center has been established in order to coordinate ITK's efforts and to support the students in the planning and administration of international mobility. Moreover, the university provides scholarships for international mobility programmes and manages various external scholarships sponsored by the Indonesian government, the US government or the European Union.

Furthermore, in 2020, the Indonesian Ministry of Education introduced a programme called "Kampus Merdeka" (MBKM) that is supposed to encourage all stakeholders of higher education institutions in Indonesia to create networks and provide opportunities for students to gain more comprehensive learning or/and job experiences outside their institution. This programme allows students for instance to participate in an online student exchange programme between universities in Indonesia or to spend up to 6 months in another university or do an internship in a company. MBKM has been adopted by ITK in 2020 and therefore implemented by the two degree programmes under review. This regulation is included in the Decree of the Rector of ITK.

Qualifications obtained at other universities in Indonesia or abroad are recognized in line with the courses at ITK. Before a stay abroad, the university concludes a learning agreement with the respective student to ensure that the courses taken are relevant to the study programme and can thus be recognized. As the students confirm, there are no problems with credit transfer or the organization of student mobility. They emphasize that the student and alumni centers as well as their academic advisors are eager to support them and to find adequate study programs and courses.

The experts appreciate the efforts undertaken by the university to foster student mobility and they are very satisfied with the structures and support mechanisms for international mobility.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Survey of student satisfaction
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the peers:
Based on the National Standards of Higher Education of Indonesia (SNPT), the two Bachelor's degree programmes use a credit point system called SKS, which is regulated as follows:

- 1 SKS of teaching covers 50 minutes of contact hours + 60 minutes assignment/tutorial + 60 minute of self-studies per week
- 1 SKS of practical work covers 170 minutes per week
- 1 SKS of seminar covers 170 minutes per week

In comparison to the ECTS credit system, wherein 1 ECTS equals 25-30 hours of students' workload, it is determined that 1 SKS is awarded for 170 minutes of work per week. One semester usually consists of 14 class meetings. The students' workload (contact hours and self-studies) is measured in Indonesian credit points (SKS), and converted to the European Credit Transfer System (ECTS). Regarding the conversion from SKS to ECTS, ITK explains that 1 SKS equals 45.3 hours and thus 1.6 ECTS, based on 28.3 hours per ECTS. According to the legal requirements, the actual number is 144 SKS (equivalent to 217,6 ECTS) for all three Bachelor's degree programmes. The experts acknowledge that a credit point system based on the students' workload is in place.

The workload is spread relatively evenly over the semesters. Moreover, the effective number of SKS the students can take depends on their achievements in the previous semester. In the two degree programmes under review, if their GPA is less than 2.5, they can take up to 18, between 2.5 and 3.0 up to 20, between 3.0 and 3.5 up to 22 and above 3.5 up to 24 SKS in one semester. The workload of the last semester is markedly reduced to give the

students enough time for their final project as well as to already start looking for a job. This mechanism is supposed to ensure that the students can really handle the workload. It also means that theoretically, students can finish their studies in less than 8 semesters, although this is relatively rare due to the high workload in general.

The experts confirm that the workload in hours is indicated in the module descriptions and the distinction between classroom work and self-studies is made transparent and is in line with the credits awarded. At the end of each semester, the students' workload for every course is monitored and evaluated.

Criterion 2.3 Teaching methodology

Evidence:

- On-site visitation of the facilities
- Self-Assessment Report
- Module descriptions
- Samples of lecturer evaluation by students
- Websites
- Discussion during audit

Preliminary assessment and analysis of the peers:
As ITK explains in the Self-Assessment Report, various student-centered learning methods are utilized in the degree programmes under review. Through the Indonesian regulations on credit points (see chapter 2.2), an adequate balance between face-to-face activities and independent learning is already ensured for all courses. Besides the regular lectures, methods such as group discussions, project- and problem-based learning, simulations etc. are used. The students confirm that these methods are actually in use and that they are satisfied with the variety of teaching methods, which support them in achieving the learning outcomes.

During the classes, active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. ITK wants to encourage the students to gain knowledge from different scientific areas and to introduce them to research activities. Teaching and learning is supported by a broad range of media, both traditional (books, papers) and online (videos, presentations etc.). The university's online learning management system (LMS) supports teachers and students in communicating and disseminating learning

material. In the course of the Covid-19 pandemic, the university has swiftly switched to online learning with videoconferences, recorded videos and other media.

The experts consider the teaching methodology employed in the degree programmes to be diverse, interactive and to show a healthy mixture between traditional and modern/alternative methods. They are well adapted to the aims and conditions of the individual courses and suitable to support the students in achieving the intended learning outcomes.

Criterion 2.4 Support and assistance

Evidence:

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

Preliminary assessment and analysis of the peers:
In order to support students in completing their studies on time with good achievements, the university and the faculty provide academic and personal support and assistance through various means. The offers can be divided into two types: academic support and non-academic support. Academic advice includes the academic advisors, the student and alumni centre, the programme coordinators, the Dean and the supervisors for the final projects. Non-academic support comprises the medical centre, the language centre, the career centre, the library, computer laboratories and student dormitories.

The main contact person for every student is their academic advisor, who is assigned to them in their first semester. An academic advisor shall help them develop an adequate schedule for their studies, choose electives according to their skills and interests and support them in case of academic and non-academic problems. Each student meets his or her academic advisor on a regular basis (at least twice per semester), who is also responsible for monitoring the study progress. The academic advisor also has to approve the student's study plan for the semester. As the peers learn and highly appreciate, the study progress is not only monitored by the academic advisor on an individual basis, but the faculty is automatically alerted when students fall below a certain number of credit points per semester and are thus threatened with dropping out. In these cases, additional advice can be provided. Therefore, at the beginning of each semester, GPA provides direction for the students regarding their study plans, targets to be achieved and strategies for selecting courses. During the semester, GPA monitors the academic progress of the students. At the

end of the semester, GPA evaluates the student's achievement under their supervision by checking the GPA that the students achieve.

Furthermore, there is supporting staff in the student and alumni center (cf. chapter 2.1), the career center, the integrated service unit and the general academic administration. The career center regularly organizes job fairs, seminars with potential employers, trainings for writing applications etc. in order to support the students in their career planning. Moreover, there are many scholarships offered to students, (e.g. from private companies, the government or other foundations). This includes scholarships for students from low-income families and for those with high academic achievements. New students can attend classes to develop their effective learning and soft skills.

In addition, every student who enrols for the final project course will be assigned one or two thesis supervisors. The role of the thesis supervisors is to help students to complete their thesis research; they also monitor the progress of the thesis in order to ensure the completion of the thesis in the intended amount of time. The students confirm towards the peers that they are supervised in the research group during their work on the thesis. There are regular meetings where the students present their results and receive feedback from the other members.

All students at ITK have access to the online-learning site (internal learning management system (LMS)). By using LMS, lecturers can upload their syllabus and learning materials or modules as well as assignment for students. Through LMS, students can also interact with other students and lecturers.

The experts conclude that there are enough resources available to provide individual assistance, advice, and support for all students. The support systems help the students to achieve the intended learning outcomes and to complete their studies successfully and without delay.

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

The experts consider criterion 2 to be fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report
- Module descriptions for each degree programme
- Websites
- Examination regulations
- Samples written exams and final theses

Preliminary assessment and analysis of the peers:
Each course has to determine objectives, which support the achievement of the Programme Learning Outcomes of the respective programme. Accordingly, each course must assess whether all defined learning outcomes stated in the module descriptions have been achieved. For this purpose, ITK utilizes various types of examination.

In each course, at least two assignments/quizzes, a mid-term and a final examination are employed. There are different assessment methods in the programmes, such as quizzes, written tests, practical performances, assignments, small projects, oral tests and presentations. In most courses, mid-term and final exam consist of written tests and additional quizzes or assignments are used. However, the other assessment methods are also used to a certain degree. Via the Academic Calendar, the students are informed about mid-term and final exams. The form and length of each exam is mentioned in the module descriptions that are available to the students via ITK' homepage and in the internal learning management system (LMS). It is common to hold small quizzes every two or three weeks, but there are generally no unscheduled tests.

The final grade of each module is calculated based on the score of these individual kinds of assessment, whereby the lecturer determines the ratio between them in accordance with the Academic Guidelines. The exact formula is given in the module handbook. At the first meeting of a course, the students are informed about what exactly is required to pass the module and about how the final grade is determined through the teaching and learning plan. ITK uses a grading system with the grades A, AB, B, BC, C, D and E, where a C (equivalent to a Grade Point of 2) is necessary to pass a module.

Based on the academic regulation to be eligible to take final exam, students must attend at least 80 % of the total course sessions. Students who have obstacles due to illness or other reasons and are not able to fulfil 80% of the total course sessions need to inform the

academic supervisor and related lecturers. The arrangement to re-sit an exam can be adjusted in advance as compensation for the student's disability by providing the evidence. Furthermore, students who are not able to attend the final exam due to illness or other reasons can provide proof and take the follow-up exam scheduled by the study programme. Students who have not reached the minimum score to pass the exam are allowed to improve their grades through a remedial process according to the regulations listed in the ITK Evaluation Guidelines.

The experts discuss with the students how many and what kind of exams they have to take each semester. They learn that for most courses there is one mid-term exam and one final exam in every semester. Usually, there are additional practical assignments or quizzes. The students confirm that a variety of assessment methods is used, including traditional methods such as written or oral exams, but also presentations or project reports are utilized. The mid-term exams are carried out in the 8th and the final exams in the 16th week of the semester, whereas the smaller quizzes and assignments take place in the other weeks. The final grade is the sum of the sub exams. Although this means that the total number of tests taken during a semester is comparatively high, the students do not complain about this workload and instead appreciate that there are several short exams instead of one big exam as this requires them to continuously study during the entire semester and not having to solely work for one final exam at the end of the semester. The students also confirm that they are well informed about the examination schedule, the examination form and the rules for grading.

Every student is required to do a final project in the last year of studies. Prior to the actual research work, the students are required to write a research proposal and present it in a seminar attended by lecturers and other students who form a research group. The research proposal has to be accepted by the Dean and the supervisor committee who will then appoint the research supervisors. Usually, there are one or two research supervisors for each student. One will act as the principal supervisor and the other act as co-supervisor. In case the student writes her or his final project or thesis in collaboration with the industry, she or he is also assigned a supervisor from the industry. After completing the work on the final project, the student has to present and defend the results in front of teachers and fellow students.
The experts discuss with the programme coordinators, the members of the teaching staff, and the students about the process of finding suitable topic of the final project or thesis. There are two possibilities: either students can propose their own ideas or they can ask their academic advisor or other teachers for suggestions.

During the on-site visit, the experts were provided with a selection of exams and final projects to check. They confirm that these represent an adequate level of knowledge as required by the EQF level 6 for the three Bachelor's degree programmes. The forms of exams are mostly oriented toward the envisaged learning outcomes of the respective courses, and the workload is distributed in an acceptable way. However, the experts are of the opinion that tasks are not always chosen that fully correspond to the intended learning objectives. Since this has only been noticed in a few examinations, the experts are of the opinion that, in principle, an adequate selection of tasks is made. However, they recommend that the higher education institution regularly review whether the tasks selected are optimal for assessing the achievement of the respective learning objectives.

The experts conclude that the criteria regarding the examinations system, concept, and organization are fulfilled and that the examinations are mostly suitable to verify whether the intended learning outcomes are achieved or not.

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

The experts consider criterion 3 to be fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Report
- Staff Handbook
- Evidence of staff workload
- Lecturer teaching Index Report
- Samples of lecturer evaluation by students
- Study plans of the degree programmes
- Module descriptions
- Websites
- Discussions during the audit

Preliminary assessment and analysis of the peers:
Actual staff members at ITK have different academic positions. There are assistant professors and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities. For example, there are lecturers who hold a Master's degree and lecturers who hold a PhD degree. A full professor needs to hold a PhD degree. The main difference of tasks and responsibilities based on academic staff position lies on the proportion of teaching and research activities. The higher the academic staff position is, the greater is the proportion of research activities, but the lower is the proportion of teaching activities. The latter may become professors once they have earned a certain amount of credits with regard to their academic work.

There are 18 teaching staff for the Bachelor's degree programme Electrical Engineering (2 with a PhD degree, 2 PhD candidate and 14 with a Master's degree), 12 for the Bachelor's degree Information Systems (1 PhD candidate and 11 with a Master's degree) and 12 for the Bachelor's degree programme Informatics (2 PhD candidates and 10 with a Master's degree). The university encourages the teaching staff with a Master's degree to pursue further qualification. These numbers mean that the ratio between academic staff and students is 1:25 in the Bachelor's degree programme Electrical Engineering, 1:25 in the Bachelor's degree programme Information Systems and 1:22 in the Bachelor's degree programme Informatics. The academic staff is supported by a considerable number of administrative and technical employees at department, faculty, and university level. In addition, the faculty regularly invites visiting lecturers from Indonesia and abroad to facilitate academic exchange. However, the experts believe that the university should include more people from industry as external lecturers. Thus, it became apparent in the discussions during the audit that this option is currently used relatively rarely. On the one hand, programme coordinators showed themselves to be open to this suggestion in the audit-discussions, and on the other hand, the industry representatives also showed an interest in principle in potential teaching opportunities. In the opinion of the experts, this would allow the university to broaden the knowledge of their teaching staff and to work against a potential shortage of teachers and make it easier to have several teachers working on their PhDs at the same time.

Recruiting new teaching staff follows a defined procedure starting with a needs analysis of the degree programmes, the proposal for new positions to the university, a public announcement and finally the recruitment based on the results of a basic competence test, a field competence test and an interview.

The academic staff is actively involved in research projects funded by grants from the Indonesian government, the university itself or other research funds, which results in a reasonable number of publications per year. ITK positions itself as a university with an applied research focus, which the peers appreciate. They also learn that students can be involved in research projects, for instance through their theses.

With regard to the absence of full and associate professors in all three Bachelor's degree programmes, the experts learn from the programme coordinators that the academic position of each teaching staff member relies on regulations by the Indonesian Ministry of Education that determines certain minimum credit points of experience for reaching the next level. Every teaching staff has responsibilities in the fields of teaching, research, and community service. The academic teaching staff must complete 200 credits in order to become an assistant professor, 400 credits in order to become an associate professor and between 800 and 900 credits in order to become full professor. In this context, one publication is normally considered to be worth 40 credits and teaching one class for one semester is worth 1 credit. Furthermore, the teaching staff of ITK spends in average 50 % of their time on teaching, 35 % on research and 15 % on community service. The students confirm that the teaching staff actively integrate their research activities into teaching. The experts support these efforts, but also point out that among the teaching staff only two lecturers have a PhD degree (2 for Electrical Engineering degree programme), while five others are currently working on a PhD degree (2 for Electrical Engineering degree programme, 1 for Information Systems degree programme, and 2 for Informatics degree programme). Moreover, the university's staff development plans are designed for the long term and, according to the submitted overview chart, will result in the first lecturer attaining associate status in 2026, with full professorship starting in 2030. In light of the absence of full and associate professors and the rising number of students per year, the experts support the university's strategic plan to increase the academic qualification of the teaching staff to at least a PhD level as soon as possible. According to the experts, this will be necessary to ensure that the intended quality goals will be met in the event of reaccreditation.

Moreover, the "plans of strengthening the capacity of National Human Resources (HR) and Science and Technology (IPTEK) in the Kalimantan Economic Corridor as set out in the Master Plan for the Acceleration and Expansion of Indonesian Economic Development (MP3EI) 2011-2025", leads to the fact that ITK encourages its teaching staff to acquire a PhD degree abroad and to participate in international research projects. With regard to this, the experts ask how the staff development plans of ITK provide for the teaching of all modules if all teaching staff with a Master's degree plan to complete a PhD degree in the near future. The programme coordinators explain that PhD candidates are released from their teaching and research duties at ITK as long as they complete their PhD degree abroad. In order to

be able to carry out their research, PhD candidates receive appropriate scholarships. If additional technical equipment is required, PhD candidates have the possibility to apply for funding from the government or big companies the university collaborates with. The remaining modules will be taught by visiting lecturers. The experts appreciate ITK's plans to continuously strengthen the qualifications of the teaching staff and focus on increasing the PhD degrees of the faculty members.

In summary, the experts highlight the engaged staff members and confirm that the composition and scientific orientation of the teaching staff – besides the mentioned restriction – are suitable for successfully implementing and sustaining the degree programmes. Both students and staff members confirm that in case of questions or problems, there is always an academic advisor available to solve the issues together with the student.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Report
- Staff handbook
- Lecturer Development Certificates
- Discussions during the audit

Preliminary assessment and analysis of the peers:
According to the self-assessment report and the discussions during the on-site audit, ITK encourages the continuing professional development of ITK staff. For this purpose, various opportunities are provided. There is a mandatory didactic training for new academic staff that encompasses curriculum design, teaching material, and innovative teaching and learning methods. Moreover, workshops are held to refresh and to deepen various didactic competences in each semester. The lecturers can also regularly participate in external didactical trainings offered and funded by the government.

The teaching staff is encouraged to study abroad or to participate in international research projects and conferences in order to enhance their knowledge, increase their English proficiency and to build international networks. For this purpose, the university informs about possible scholarships to support academic mobility. In general, the staff training and exchange is managed and under the coordination of the Training and Development Center of ITK. Particularly for junior lecturers with a master’s degree, ITK offers training to prepare them for acquiring a PhD abroad, for instance through English courses, information on foreign education systems, administrative support, and supporting (international) research

collaborations. The extent to which this is of particular importance, as the academic qualification of at least 50 % of the teaching staff should be increased to at least a PhD level as soon as possible, has been explained in more detail under criterion 4.1. According to a statistical overview provided by ITK, in the last five years, lecturers of the two study programmes under review have been involved in international activities in order to conduct doctoral programmes and research collaboration.

Moreover, the experts learn from the teaching staff that there are many different options to apply for funding for research projects, not only from ITK but also from the government and big companies the university collaborates with.

In summary, the experts appreciate the university's efforts in the further development of ITK employees and consider the support mechanisms for the continuing professional development of the teaching staff adequate and sufficient.

Criterion 4.3 Funds and equipment

Evidence:

- List of laboratories and equipment
- On-site visitation of the facilities
- Facilities, Infrastructure, and Safety Report
- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the peers:

The university and the faculty are mainly funded by the Indonesian government and the community, through tuition fees and through grants for research projects in collaboration with industry. The figures presented by the university show that the faculty's income is stable and the funding of the degree programmes is secured. The academic staff emphasize that from their point of view, the three degree programmes under review receive sufficient funding for teaching and learning activities as well as research, which results in well-equipped facilities and good access to literature, databases and modern software. The students confirm this positive impression and state their satisfaction with the available resources.

In the self-assessment report, ITK gives an extensive overview of the available learning spaces and library. Moreover, they list detailed information of all laboratories available per study programme. During the on-site visit, the experts take a look at some central facilities,

relevant research and teaching facilities and, in particular, all the different laboratories available for the two study programmes. The university has licensed Microsoft Office and other standard software and provides the students full access to this software. The experts appreciate the range of learning tools and resources available to the students. They consider the university's facilities and available equipment in the labs to be of appropriate standards. The facilities offer sufficient opportunities for the professional and individual development of students and teachers. Although the experts can see that there is scope for expanding the equipment in all three programmes, they are convinced that there is a minimum standard of equipment that guarantees adequate implementation of the three Bachelor's degree programmes.

In discussions with the students, the experts learn that it has already happened that the latest version/license of a software was not available. However, since the experts believe that there are constant developments, especially in computer science, they urge the university to ensure that the software used is regularly updated so that students are aware of the latest developments and are optimally prepared for their subsequent jobs.

With regard to the Bachelor's study programme Electrical Engineering, however, the experts recommend that the laboratories should be expanded even further in terms of specializations. Of course, the experts understand that the university's resources are limited and that there is currently enough equipment for the basic implementation of the programme. However, the experts recommend further expansion geared towards each specialization area offered as soon as this is financially possible.

In summary, the experts group judges the available funds, the technical equipment, and the infrastructure (laboratories, studios, library, seminar rooms etc.) to comply with the requirements for adequately sustaining the degree programmes.

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

The experts consider criterion 4 to be fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module descriptions
- Websites

Preliminary assessment and analysis of the peers:
The experts conclude that the module descriptions mostly reflect the respective curricula adequately and contain meaningful information about the individual modules. In particular, the descriptions provide comprehensive information about the persons responsible for each module, the teaching methods and workload, the credit points awarded, the intended learning outcomes, the applicability, the admission and examination requirements, and the forms of assessment, and details explaining how the final grade is calculated. However, during the discussions it became apparent that the module descriptions do not always adequately represent in which modules practical parts are used. In this regard, the program managers themselves stated that, for example, in some cases quite superficial information is provided with regard to programming content. For this reason, the experts argue that the module handbooks need to be revised in order to adequately represent the practical work actually carried out and the content covered.

The students confirm during the discussions that information about the courses is always available online and that details concerning examinations and contents are provided by the teaching staff at the beginning of each course. The experts conclude that the module descriptions are thus accessible to the students as well as to all stakeholders.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Sample Diploma Certificate for each degree programme
- Sample Transcript of Records for each degree programme
- Sample Diploma Supplement for each degree programme

Preliminary assessment and analysis of the peers:
The experts confirm that the students of the three degree programmes under review are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Transcript of Records lists all

courses that the graduate has completed, the achieved credit points, grades, and cumulative GPA. The Diploma Supplements are bilingual (Bahasa and English). The Diploma Supplement and the Transcript of Records contain almost all necessary information about the respective degree programme. However, some pieces of information should be added. The Diploma Supplement must contain detailed information about the access requirements of the degree programmes. Therefore, the peers urge ITK to include this information in the Diploma Supplements. Furthermore, the peers note that neither the Transcript of Records nor the Diploma Supplement contains the conversion of SKS into ECTS. The Diploma documents need to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. Therefore, the peers point out that the Diploma Supplement needs to follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Reports
- All relevant regulations on the studies, examination, admission and quality assurance are published on the university's website

Preliminary assessment and analysis of the peers:
The peers confirm that the rights and duties of both ITK and the students are clearly defined and binding. All rules and regulations are published on the university's website in Bahasa as well as in English and hence available to all stakeholders. In addition, the students receive all relevant course material in the language of the degree programmes at the beginning of each semester.

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

The experts consider criterion 5 not to be fulfilled.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Internal Quality Audit Reports for each degree programme
- Rectorate Decree of Internal Quality Assurance System
- Overview of Main Duties and Functions of quality Assurance Team
- Academic regulations
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The experts learn that there is an institutional system of quality management aiming at continuously improving the degree programmes. This system relies on internal (SPMI) as well as external (SPME) quality assurance.

SPME focuses on both national and international accreditations. Every degree programme and every Higher Education Institution in Indonesia has to be accredited by the national Accreditation Agency (BAN-PT). ITK as an institution as well as the two degree programmes under review have received the accreditation status B (good) from BAN-PT.

SMPI encompasses all activities focused on implementing measures for improving the teaching and learning quality at the university. ITK has a Center of Quality Assurance (PJM), which conducts regular scans of academic and non-academic quality criteria within the institution. Apart from this office, there are different quality assurance units in place, such as the Department's Quality Assurance Group (GJM) and the internal quality auditor group. Different measures are taken to gather information about a variety of qualitative aspects of the institution.

Since ITK is striving to become an internationally acknowledged university, the reliance on students' feedback and the necessity to ensure and improve the employability of the graduates are of major importance to the coordinators. Internal evaluation of the quality of the degree programmes is mainly provided through student, alumni and employer surveys.

On the institutional level, ITK annually carries out an SPMI evaluation of ten standards concerning management, resources, strategic development and quality assurance procedures.

The performance of the departments is continuously checked through a specific information system. There is a major curriculum revision process for each programme every five years and a minor one every year (cf. chapter 1). The graduates are followed by ITK through a regular tracer study conducted by the career centre. Internal and external stakeholders give input through these processes in various ways.

Lastly, at the end of each semester, the students give their feedback on the courses by filling out the questionnaire online. The questionnaires are developed by the course survey committee and include questions with respect to the courses in general and about the teachers' performance. The discussion with the students revealed that those in charge are always eager and open for feedback aside from the official evaluations and that students have the impression that their comments are taken into consideration with regard to the further improvement of the programmes. This becomes apparent in the already mentioned constant curricular revision process that is performed under participation of students and industry partners. The industry representatives confirm in the discussion that the university is eager to receive feedback about new developments and trends and the employability of their graduates. The peers particularly appreciate that ITK implemented an advisory board consisting of government, alumni, different associations, students and other stakeholders who are involved in modifying and improving the curricula of the degree programmes.

Concerning the internal feedback loops, the results of the course evaluations are centrally assessed and analysed before they are communicated to the Head of Department who would then be responsible to initiate any measures if problems or needs for improvement have been detected. A summary of the results is made accessible to the students. In case the satisfaction of the students with staff members is deficient, the Heads of Department will contact the respective teacher, discuss the issue and propose solutions. If no improvement can be achieved over a longer period, the staff member will be dismissed. Thus, the peers agree that the quality management circles at ITK are well established and work under participation of all stakeholders.

In summary, the experts are satisfied with the quality management system at ITK, especially with the continuous feedback loops and the involvement of important stakeholder groups such as students, alumni and representatives from the industry.

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

The experts consider criterion 6 to be fulfilled.

D Additional Documents

No additional documents needed.

E Summary: Peer recommendations (07.09.2023)

The experts summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Electrical Engineering	With requirements for one year	30.09.2029
Ba Information Systems	With requirements for one year	30.09.2029
Ba Informatics	With requirements for one year	30.09.2029

Requirements

For all degree programmes

A 1. (ASIIN 5.1) The module handbooks need to be revised in order to adequately reflect the practical work actually carried out and the content covered.

A 2. (ASIIN 5.2) The Diploma Supplement should follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide. The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme.

A 3. (ASIIN 5.2) Ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes.

For the Bachelor's degree programme Electrical Engineering

A 4. (ASIIN 1.3) The proportion of courses with practical parts must be increased. These must then subsequently be reflected in the module descriptions.

For the Bachelor's degree programmes Information Systems and Informatics

A 5. (ASIIN 1.3) Both programmes should include at least two basic applied programming courses.

Recommendations

For all degree programmes

E 1. (ASIIN 1.1) It is recommended to continuously raise the content level of the final theses in the medium term.

E 2. (ASIIN 3) It is recommended to regularly review whether the chosen examination tasks are appropriate for verifying the achievement of the respective learning objectives.

E 3. (ASIIN 4.1) It is recommended to include people from the industry as external teachers.

E 4. (ASIIN 4.3) It is recommended to consistently ensure that the software used is regularly kept up to date.

For the Bachelor's degree programme Electrical Engineering

E 5. (ASIIN 4.3) It is recommended to establish laboratories for the individual specialisation fields in the medium term.

F Comment of the Technical Committees (14.09.2023)

Technical Committee 02 – Electrical Engineering/Information Technology (04.09.2023)

Assessment and analysis for the award of the ASIIN seal:

The TC 02 discusses the accreditation procedure and follows the decision of the experts.

The Technical Committee 02 – Electrical Engineering/Information Technology recommends the award of the seals as follows:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Electrical Engineering	With requirements for one year	30.09.2029	–	–

Technical Committee 04 – Informatics/Computer Science (14.09.2023)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and proposes editorial changes to requirements A 2 and A 5 as well as to recommendations E 1 and E 3 for clarification. The TC is also in favor of rewording recommendation E 4 to make it clearer. Otherwise, the TC agrees with the experts' assessment without any changes.

The Technical Committee 04 – Informatics/Computer Science recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Information Systems	With requirements for one year	30.09.2029	–	–
Ba Informatics	With requirements for one year	30.09.2029	–	–

Requirements

For all degree programmes

A 1. (ASIIN 5.1) The module handbooks need to be revised in order to adequately reflect the practical work actually carried out and the content covered.

A 2. (ASIIN 5.2) The Diploma Supplement must follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users’ Guide. The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme. Ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes.

For the Bachelor's degree programme Electrical Engineering

A 3. (ASIIN 1.3) The proportion of courses with practical parts must be increased. These must then subsequently be reflected in the module descriptions.

For the Bachelor's degree programmes Information Systems and Informatics

A 4. (ASIIN 1.3) Both programmes must include at least two basic applied programming courses.

Recommendations

For all degree programmes

E 1. (ASIIN 1.1) It is recommended to continuously raise the level of the final theses in the medium term.

E 2. (ASIIN 3) It is recommended to regularly review whether the chosen examination tasks are appropriate for verifying the achievement of the respective learning objectives.

E 3. (ASIIN 4.1) It is recommended to include external teachers from the industry.

E 4. (ASIIN 4.3) It is recommended to ensure accessibility of up-to-date software to the students.

For the Bachelor's degree programme Electrical Engineering

E 5. (ASIIN 4.3) It is recommended to establish laboratories for the individual specialisation fields in the medium term.

G Decision of the Accreditation Commission (22.09.2023)

Assessment and analysis for the award of the ASIIN seal:

The Accreditation Commission discusses the accreditation procedure and decides to merge the formal requirements about the Diploma Supplement (initially A2 and A3), as they fit together thematically. The AC also agrees with the proposed editorial changes of TC 04. Apart from this, the AC follows the assessment of the peers and the TC without any changes.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Electrical Engineering	With requirements for one year	30.09.2029	–	–
Ba Information Systems	With requirements for one year	30.09.2029	–	–
Ba Informatics	With requirements for one year	30.09.2029	–	–

Requirements

For all degree programmes

A 1. (ASIIN 5.1) The module handbooks need to be revised in order to adequately reflect the practical work actually carried out and the content covered.

A 2. (ASIIN 5.2) The Diploma Supplement must follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide. The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme.

A 3. (ASIIN 5.2) Ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes.

For the Bachelor's degree programme Electrical Engineering

A 4. (ASIIN 1.3) The proportion of courses with practical parts must be increased. These must then subsequently be reflected in the module descriptions.

For the Bachelor's degree programmes Information Systems and Informatics

A 5. (ASIIN 1.3) Both programmes must include at least two basic applied programming courses.

Recommendations

For all degree programmes

E 1. (ASIIN 1.1) It is recommended to continuously raise the level of the final theses in the medium term.

E 2. (ASIIN 3) It is recommended to regularly review whether the chosen examination tasks are appropriate for verifying the achievement of the respective learning objectives.

E 3. (ASIIN 4.1) It is recommended to include external teachers from the industry.

E 4. (ASIIN 4.3) It is recommended to ensure accessibility of up-to-date software to the students.

For the Bachelor's degree programme Electrical Engineering

E 5. (ASIIN 4.3) It is recommended to establish laboratories for the individual specialisation fields in the medium term.

H Fulfilment of Requirements (24.09.2024)

Analysis of the experts and the Technical Committees (05.09.2024)

Requirements

For all degree programmes

A 1. (ASIIN 5.1) The module handbooks need to be revised in order to adequately reflect the practical work actually carried out and the content covered.

Initial Treatment	
Experts	not (completely) fulfilled Justification: The module handbooks have been revised to reflect how much practical work is included in each module. The modules from all three study programmes have been updated to include the lecturers in charge of each module, distribution of the workload, and detailed learning content. However, there are a few errors in the sum of examination forms and some of the workload hours do not correctly add up to the credit points and a course is not consistently named the same: • The module *KU201218* is sometimes referred to *Algorithm and Programming*, and sometimes *Programming Algorithm* • The described percentage weighting of the individual assessment components (Assignments 20%, Quiz 10%, Mid Term Evaluation 30%, and Final Term Evaluation 30%) of *SI201432 Data Structures* does not add up to 100%. • The university describes that university-wide, 1 SKS equals 45 hours and 1 SKS equals 1.511 ECTS. Therefore, the total number of working hours for 3 SKS should be 135 hours, but in some cases the working hours specified in the module descriptions do not match the assigned credits. These results may be due to an arithmetical error, or the hours of the individual activities shown may need to be further adjusted. Therefore, the module handbooks should all be reviewed again with regard to the consistency of working hours and associated credits. Some examples: o In Information System: the module Discrete Mathematics has assigned 3 SKS but only 110 working hours o In Informatics: the module Programming Algorithm has assigned 3 SKS, but a total of 161,5 working hours

	○ In Electrical Engineering: the module Fundamentals of Physics 1 has assigned 3 SKS, but a total of 161,5 working hours.
TC 02	not (completely) fulfilled Vote: unanimous Justification: The TC follows the vote of the experts.
TC 04	not (completely) fulfilled Vote: unanimous Justification: The TC follows the assessment of the experts.
AC	not fulfilled Vote: unanimous Justification: The AC follows the assessment of the experts.

A 2. (ASIIN 5.2) The Diploma Supplement must follow the European template and needs to include statistical data about the distribution of final grade according to the ECTS Users' Guide. The Transcript of Records needs to list the acquired ECTS points of each course and how many ECTS points are awarded for the whole degree programme.

Initial Treatment	
Experts	not (completely) fulfilled Justification: The Diploma Supplement has included statistical data about the distribution of the final grade in Section 4.6 Grade Distribution. However, the ECTS points of the individual courses are not listed, but only the total sum of the ECTS points earned in the entire degree programme is shown in the Transcript of Records. Only the CP (Indonesian credits) are allocated to the individual courses. In order for the requirement to be considered completely fulfilled, the corresponding ECTS points should also be listed for each course.
TC 02	not (completely) fulfilled Vote: unanimous Justification: The TC follows the vote of the experts.
TC 04	not (completely) fulfilled Vote: unanimous Justification: The TC follows the assessment of the experts.
AC	Fulfilled. Vote: unanimous Justification: The AC disagrees with the assessment of the experts and the TC. It is sufficient to state the respective SKS of the individual modules and a total sum in ECTS. The criteria therefore do not justify maintaining the requirement. The AC considers the requirement to be fulfilled.

A 3. (ASIIN 5.2) Ensure that the Diploma Supplement contains detailed information about the access requirements of the degree programmes.

Initial Treatment	
Experts	fulfilled Justification: The Diploma Supplement contains detailed information about the access requirements for the degree programmes.
TC 02	fulfilled Vote: unanimous Justification: The TC follows the vote of the experts.
TC 04	Fulfilled. Vote: unanimous Justification: The TC follows the assessment of the experts.
AC	Fulfilled. Vote: unanimous Justification: The AC follows the assessment of the experts.

For the Bachelor's programme Electrical Engineering

A 4. (ASIIN 1.3) The proportion of courses with practical parts must be increased. These must then subsequently be reflected in the module descriptions.

Initial Treatment	
Experts	fulfilled Justification: The program has added more practical parts to the modules which accumulate to 40.97% of the new curriculum.
TC 02	fulfilled Vote: unanimous Justification: The TC follows the vote of the experts.
AC	Fulfilled. Vote: unanimous Justification: The AC follows the assessment of the experts.

For the Bachelor's programmes Information Systems and Informatics

A 5. (ASIIN 1.3) Both programmes must include at least two basic applied programming courses.

Initial Treatment	
Experts	fulfilled Justification: Two appropriate programming courses were introduced.
TC 04	Fulfilled.

	Vote: unanimous Justification: The TC follows the assessment of the experts.
AC	Fulfilled. Vote: unanimous Justification: The AC follows the assessment of the experts.

Decision of the Accreditation Commission (24.09.2024)

Degree programme	**ASIIN-label**	**Subject-specific label**	**Accreditation until max.**
Ba Electrical Engineering	Requirement 1not fulfilled	-	6 months prolonga-tion
Ba Informatics	Requirement 1 not fulfilled	-	6 months prolonga-tion
Ba Information Systems	Requirement 1not fulfilled	-	6 months prolonga-tion

I Fulfilment of Requirements (25.03.2025)

Analysis of the experts and the Technical Committees (13.03.2025)

Requirements

For all degree programmes

A 1. (ASIIN 5.1) The module handbooks need to be revised in order to adequately reflect the practical work actually carried out and the content covered.

Initial Treatment	
Experts	not (completely) fulfilled Justification: The module handbooks have been revised to reflect how much practical work is included in each module. The modules from all three study programmes have been updated to include the lecturers in charge of each module, distribution of the workload, and detailed learning content. However, there are a few errors in the sum of examination forms and some of the workload hours do not correctly add up to the credit points and a course is not consistently named the same: • The module *KU201218* is sometimes referred to *Algorithm and Programming*, and sometimes *Programming Algorithm* • The described percentage weighting of the individual assessment components (Assignments 20%, Quiz 10%, Mid Term Evaluation 30%, and Final Term Evaluation 30%) of *SI201432 Data Structures* does not add up to 100%. • The university describes that university-wide, 1 SKS equals 45 hours and 1 SKS equals 1.511 ECTS. Therefore, the total number of working hours for 3 SKS should be 135 hours, but in some cases the working hours specified in the module descriptions do not match the assigned credits. These results may be due to an arithmetical error, or the hours of the individual activities shown may need to be further adjusted. Therefore, the module handbooks should all be reviewed again with regard to the consistency of working hours and associated credits. Some examples: o In Information System: the module Discrete Mathematics has assigned 3 SKS but only 110 working hours o In Informatics: the module Programming Algorithm has assigned 3 SKS, but a total of 161,5 working hours

	○ In Electrical Engineering: the module Fundamentals of Physics 1 has assigned 3 SKS, but a total of 161,5 working hours.
TC 02	not (completely) fulfilled Vote: unanimous Justification: The TC follows the vote of the experts.
TC 04	not (completely) fulfilled Vote: unanimous Justification: The TC follows the assessment of the experts.
AC	not (completely) fulfilled Vote: unanimous Justification: The TC follows the assessment of the experts.
Secondary Treatment	
Experts	Fulfilled. Justification: The university has submitted new revised module handbooks. All previously noted issues and inconsistencies have been addressed so that complete and correct versions are now available. The experts therefore consider the requirement to be fulfilled.
TC 02	Fulfilled. Vote: unanimous Justification: The TC follows the vote of the experts.
TC 04	Fulfilled. Vote: unanimous Justification: The TC follows the assessment of the experts without any changes.

Decision of the Accreditation Commission (25.03.2025)

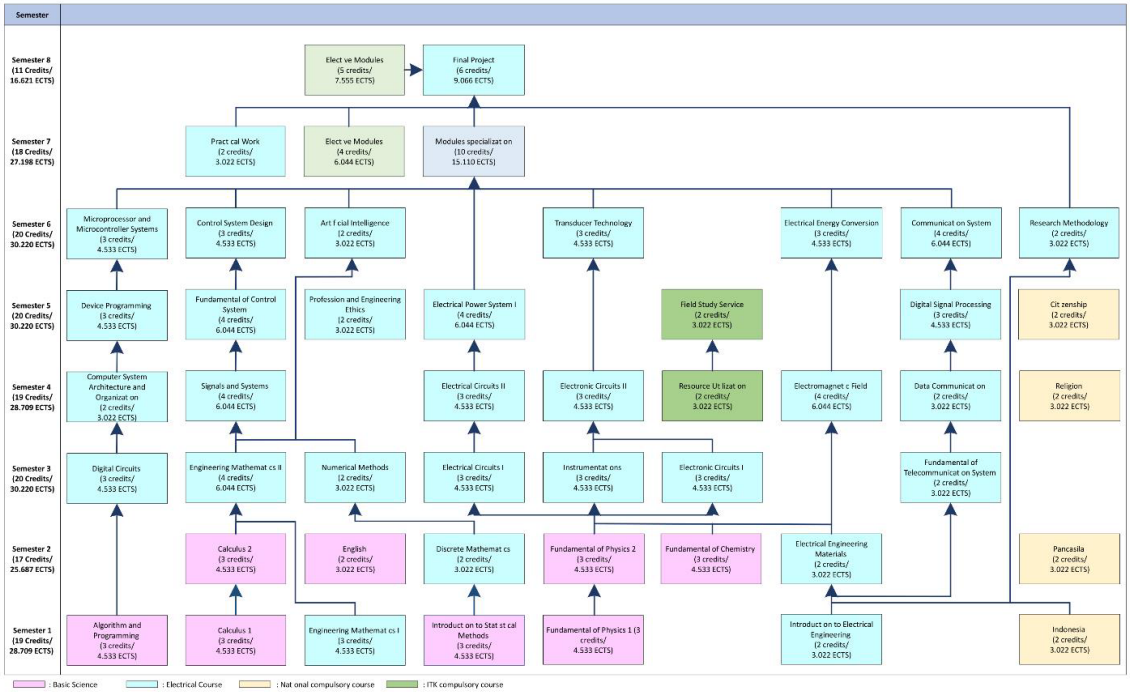
Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Electrical Engineering	All requirements fulfilled	-	30.09.2029
Ba Informatics	All requirements fulfilled	-	30.09.2029
Ba Information Systems	All requirements fulfilled	-	30.09.2029

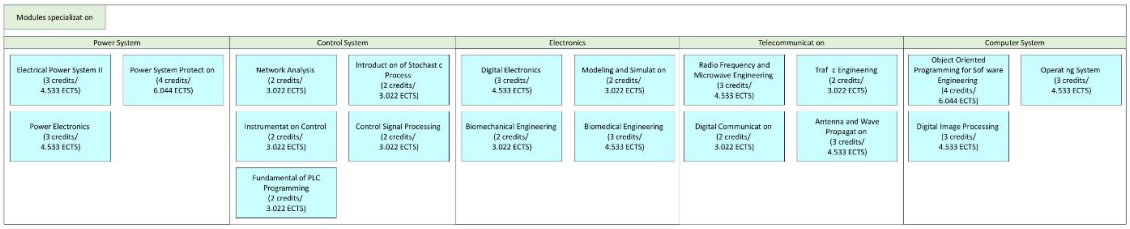
Appendix: Programme Learning Outcomes and Curricula

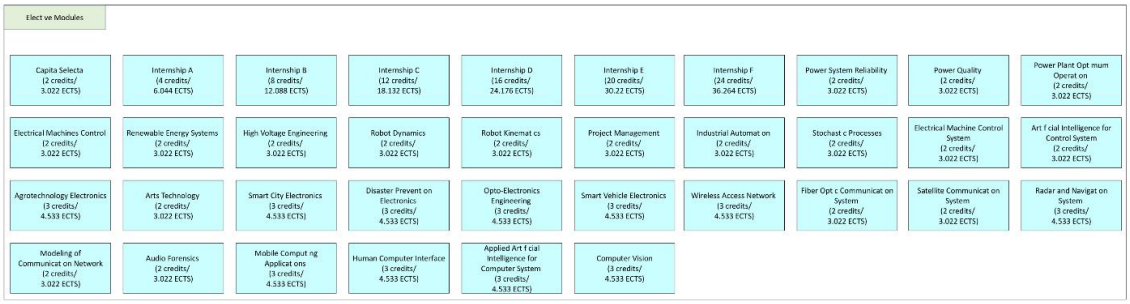
According to the curriculum handbook the following **objectives** and **learning outcomes (intended qualfications profile)** shall be achieved by the Bachelor's degree programme Electrical Engineering:

1) "An ability to communicate effectively in oral and written manners with a range of audiences
2) An ability to solve complex problems and make informed judgments, which must consider the sustainability aspect as well as to utilise information technology and the potential of national resources with a global perspective.
3) An ability to collaborate effectively in a multidisciplinary and multicultural team whose members together provide leadership to achieve the objectives
4) An ability to apply Pancasila values, ethical and professional responsibilities
5) An ability to perform life-long learning and apply new knowledge as needed using appropriate learning strategies
6) An ability to identify, formulate and solve engineering problems using knowledge of mathematics, basic science and engineering science
7) An ability to apply engineering design to produce solutions that meet specified needs with consideration of technical standards, public health, safety, and welfare, as well as ease of application, and sustainable applications
8) An ability to design and conduct experiments in electrical engineering, as well as to analyze and interpret data to strengthen engineering judgments
9) An ability to utilize analysis tools based on information technology and computation, which are suitable for engineering activities in the field of electrical engineering
10) An ability to apply the latest methods, skills, and modern engineering tools, as needed in the field of electrical engineering."

The following **curriculum** is presented:



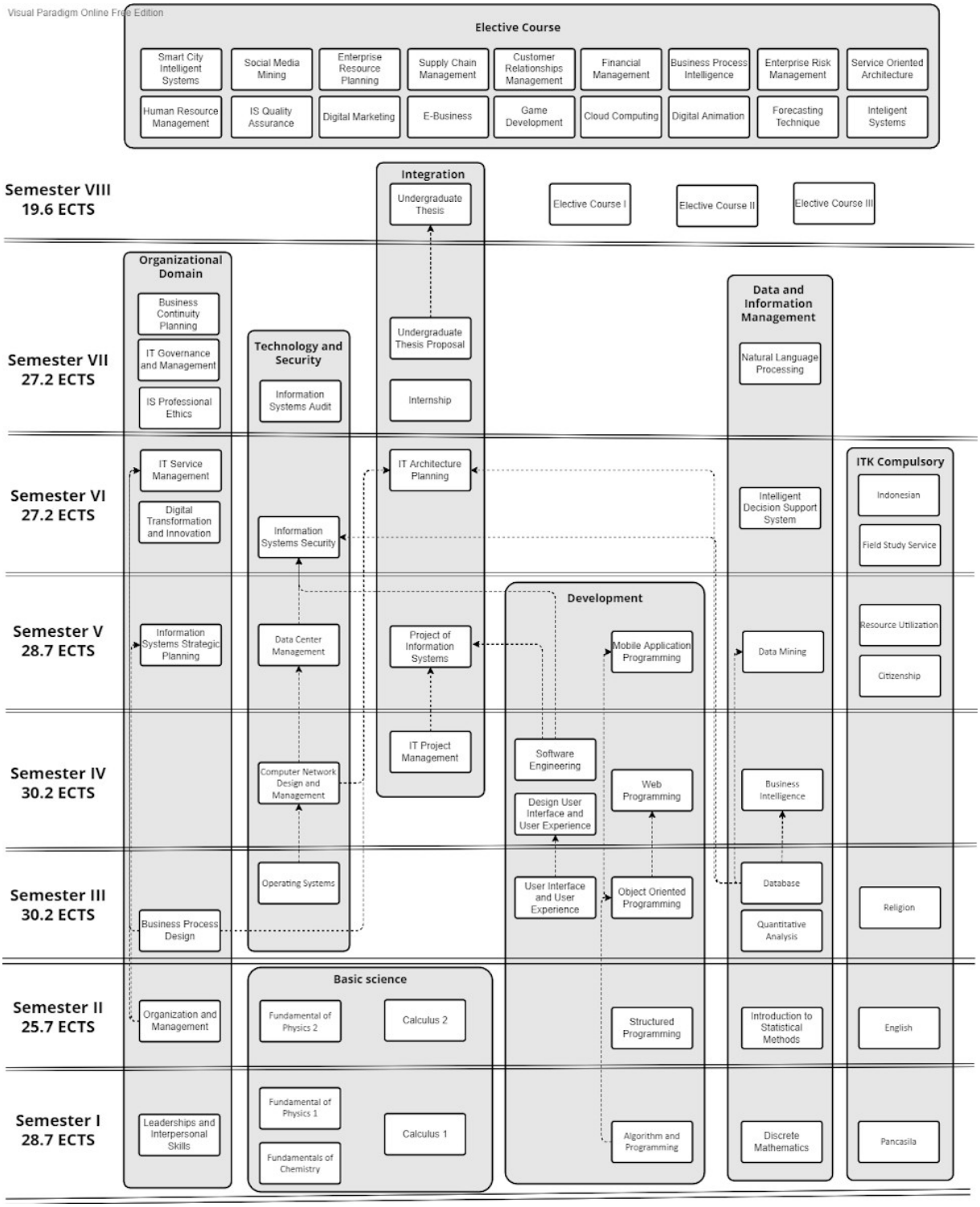




According to the curriculum handbook the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Information Systems:

1) "An ability to communicate effectively in oral and written manners with a range of audiences
2) An ability to solve complex problems and make informed judgments, which must consider the sustainability aspect as well as to utilise information technology and the potential of national resources with a global perspective.
3) An ability to collaborate effectively in a multidisciplinary and multicultural team whose members together provide leadership to achieve the objectives
4) An ability to apply Pancasila values, ethical and professional responsibilities
5) An ability to perform life-long learning and apply new knowledge as needed using appropriate learning strategies.
6) An ability to develop and evaluate information systems to support business goals
7) An ability to formulate data and information to support effective and efficient decision making in business and management context
8) An ability to design and evaluate infrastructure and technology while providing assurance for the information security
9) An ability to develop strategic management of IT in organisations
10) An ability to integrate and implement IT solutions in organisations."

The following **curriculum** is presented:



According to the curriculum handbook the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Informatics:

1) An ability to communicate effectively in oral and written manners with a range of audiences
2) An ability to solve complex problems and make informed judgments, which must consider the sustainability aspect as well as to utilise information technology and the potential of national resources with a global perspective
3) An ability to collaborate effectively in a multidisciplinary and multicultural team whose members together provide leadership to achieve the objectives
4) An ability to apply Pancasila values, ethical and professional responsibilities,
5) An ability to perform life-long learning and apply new knowledge as needed using appropriate learning strategies.
6) An ability to understand mathematical concepts, statistics, discrete structures, data structures and algorithms, which solves various problems related to engineering with computational principles effectively and efficiently
7) An ability to implement and develop systems engineering by considering hardware and operating system capabilities to function optimally
8) An ability to apply concepts related to architecture, computer organisation, networks, and databases, which enables them to support system development.
9) An ability to analyse and implement the concepts of data science, intelligent systems, and computer vision in solving problems of food security, energy, maritime and smart cities.
10) An ability to integrate system development principles in the fields of artificial intelligence, embedded systems, or software, including system analysis and design, implementation and testing, as well as system quality assurance.
11) An ability to apply the concept of a digital start-up business based on information technology
12) An ability to apply professional ethics in the field of computer science."

The following **curriculum** is presented:

Semester 1

No	Code	Courses	Credit Points (CP)	ECTS
1	KU201218	Algorithm and Programming	3	4.533

2	KU201219	English	2	3.022
3	KU201211	Fundamental of Physics 1	3	4.533
4	KU201209	Calculus 1	3	4.533
5	KU201215	Fundamental of Chemistry	3	4.533
6	KU201101	Pancasila	2	3.022
7	IF201401	Introduction to Informatics	2	3.022
Total CP			**18**	**27.198**

Semester 2

No	Code	Courses	Credit Points (CP)	ECTS
1	KU201212	Fundamental of Physics 2	3	4.533
2	KU201210	Calculus 2	3	4.533
3	IF201402	Discrete Mathematics	3	4.533
4	IF201404	Object Oriented Programming	3	4.533
5	KU201217	Introduction to Statistical Methods	3	4.533
6	IF201403	Digital Systems	3	4.533
Total CP			18	27,198

Semester 3

No	Code	Courses	Credit Points (CP)	ECTS
1	KU20110X	Religion	2	3.022

2	IF201405	Linear Algebra and Geometry	3	4.533
3	IF201407	Computer Architecture	3	4.533
4	KU201102	Indonesian	2	3.022
5	IF201406	Introduction to Probability and Optimization	3	4.533
6	IF201409	Operating Systems	3	4.533
7	IF201408	Data Structure	4	6.044
Total CP			**20**	**30.22**

Semester 4:

No	Code	Courses	Credit Points (CP)	ECTS
1	IF201415	Software Analysis and Design	3	4.533
2	IF201414	Computer Graphics	3	4.533
3	IF201411	Computer Networks	3	4.533
4	IF201410	Algorithm Design and Analysis	3	4.533
5	IF201413	Database Systems	3	4.533
6	IF201412	Graph and Automated Theory	3	4.533
7	IF201416	General Insights and Informatics Ideas	2	3.022
Total CP			**20**	**30.22**

Semester 5

No	Code	Courses	Credit Points (CP)	ECTS
1	IF201417	Web Design	3	4.533
2	IF201420	Software Implementation and Testing	3	4.533
3	IF201419	Database Management	3	4.533
4	KU201320	Resource Utilization	2	3.022
5	IF201421	Functional Programming	3	4.533
6	IF201418	Introduction to Artificial Intelligence	3	4.533
7	IF201422	Digital Start-up	2	3.022
Total CP			**19**	**28.709**

Semester 6

No	Code	Courses	Credit Points (CP)	ECTS
1	KU201108	Citizenship	2	3.022
2	KU201321	Field Study Service	2	3.022
3	IF201425	Machine Learning	3	4.533
4	IF201424	Web-Based Application Development	3	4.533
5	IF201423	Digital Image Processing	3	4.533
6	IF201426	Advanced Digital Start- up	2	3.022
7	IF2015XX	Elective Courses	3	4.533
Total CP			**18**	**27.198**

Semester 7

No	Code	Courses	Credit Points (CP)	ECTS
1	IF201427	Human and Computer Interaction	3	4.533
2	IF201431	Professionals of Informatics	2	3.022
3	IF201601	Practical Work	2	3.022
4	IF201429	Mobile Device Application Development	3	4.533
5	IF201428	Data mining	3	4.533
6	IF201430	Distributed Systems	3	4.533
7	IF2015XX	Elective Courses	3	4.533
Total CP			**19**	**28.709**

Semester 8

No	Code	Courses	Credit Points (CP)	ECTS
1	IF201701	Undergraduate Theses	6	9.066
2	IF2015XX	Elective Courses	3	4.533
3	IF2015XX	Elective Courses	3	4.533
Total CP			**12**	**18.132**

Electives:

No	Code	Courses	Credit Points (CP)	ECTS
1	IF201502	Big Data	3	4.533

2	IF201505	Deep Learning	3	4.533
3	IF201514	Capita Selecta	3	4.533
4	IF201504	Web Intelligence	3	4.533
5	IF201503	Evolutionary Computing	3	4.533
6	IF201515	Internship A	4	6.044
7	IF201516	Internship B	8	12.088
8	IF201517	Internship C	12	18.132
9	IF201518	Internship D	16	24.176
10	IF201519	Internship E	20	30.22
11	IF201520	Internship F	24	36.264
12	IF201510	ICT Project Management	3	4.533
13	IF201513	Digital Game Programming	3	4.533
14	IF201507	Speech Processing	3	4.533
15	IF201501	Natural Language Processing	3	4.533
16	IF201508	Software Quality Assurance	3	4.533
17	IF201506	Data Science	3	4.533
18	IF201511	Information Technology Governance	3	4.533
19	IF201512	IoT Technology	3	4.533
20	IF201509	Computer Vision	3	4.533
Total CP			**126**	**190.386**