ASIIN Seal & Euro-Inf®

Accreditation Report

Bachelor's Degree Programmes
Ba Mathematics Education
Ba Informatics
Ba Information system

Provided by
Universitas Alma Ata

Version: 25 March 2025

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Sistem Informasi	Information System	ASIIN, Euro-Inf®	BAN-PT, 18.08.2020 -18.08.2025	04
Informatika	Informatics	ASIIN, Euro-Inf®	LAM INFOKOM, 14.12.2023 -14.12.2028	04
Pendidikan Matematika	Mathematics Education	ASIIN, Euro-Inf®	LAMDIK, 24.10.2022 -30.09.2027	12
Date of the contract: 17.11.2023 **Submission of the final version of the self-assessment report:** 03.09.2024 **Date of the onsite visit:** 08-09.05.2024 (on-site), online audit: 29-30.10.2024 **at:** Universitas Alma Ata, Yogjakarta				
Expert panel: Prof. Dr. Thomas Götz, University of Koblenz, Assoc. Prof. Yohannes Kurniawan, Bina Nusantara University Uwe Sesztak, Independent Consultant Kadek Gemilang Santiyuda, Student at Universitas Gadjah Mada				
Representative of the ASIIN headquarter: Paulina Petracenko				

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

[2] TC: Technical Committee for the following subject areas: TC 04 - Informatics/Computer Science; TC 12 - Mathematics.

Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of December 07, 2021 Subject-Specific Criteria of Technical Committee 04 – Informatics/Computer Science as of March 29, 2018 Subject-Specific Criteria of Technical Committee 12 – Mathematics as of December 9, 2016	

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
Information System	Sarjana Komputer (S.Kom.) / Bachelor of Computer (B.C)	Digital Enterprise	6	Full time	/	8 Semester	147 Credit/230.79 ECTS	12 September 2016
Informatics	Sarjana Komputer (S.Kom.) / Bachelor of Computer (B.C)	Software Engineering and Data Science with	6	Full time	/	8 Semester	144 Credit/226.08 ECTS	12 September 2016
Mathematics Education	Sarjana Pendidikan (S.Pd) / Bachelor of Education (B.Ed)	Information and Communication Technology (ICT) in Mathematics Education	6	Full time	/	8 Semester	144 Credit/226.08 ECTS	12 September 2016

For the Bachelor's degree programme Informatics the institution has presented the following profile on its website:

"Informatics Study Program of Alma Ata University Yogyakarta was established in 2015 along with the change of form from the Alma Ata College of Religious Sciences and College of Health Sciences to become a University with the name Alma Ata University with Decree of the Minister of Research, Technology and Higher Education of the Republic of Indonesia No.155/KPT/I/2016 effective 21 December 2015. Informatics study programme belongs to the Faculty of Computer and Engineering with area of expertise in software engineering and data science. These two fields of expertise are the main focus in the Informatics Curriculum which already refers to Outcome Based Education (OBE) and adopts the concept of Freedom to Learn and Independent Campus. In addition, the Informatics Study Programme also has a specialisation that leads to Medical and Health Informatics as a distinctive insight with a case study approach.

Graduate Profile:

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

- Graduates can analyse computing problems and apply computing principles and other relevant disciplines to identify solutions for organizations.
- Graduates can design, implement, and Evaluate computing-based solutions that meet user needs with appropriate approaches.
- Graduates exhibit a professional, independent, and globally competitive demeanor, enhancing the nation's welfare and global civilization, guided by Islamic and National values.
- Graduates can think logically, critically, and systematically in utilizing informatics/ computer science knowledge to solve real problems in the field of medical and health informatics."

For the Bachelor's degree programme Information System the institution has presented the following profile on its website:

"The Information Systems Study Program was established with the goal of meeting the growing demand for experts in the fields of information technology and information systems, driven by the rapid development of technology and digital transformation across various industrial sectors. This program was officially launched in 2016 as part of the Faculty of Computer Science and Engineering at Alma Ata University.

Since its inception, the Information Systems Study Program has been committed to providing quality education that integrates computer science with management and business concepts. The curriculum is designed to keep pace with the dynamic developments and needs of the industry.

As time progresses, the Information Systems Study Program continues to innovate in curriculum development and teaching activities by incorporating courses relevant to Industry 4.0, such as Big Data, Internet of Things (IoT), Artificial Intelligence (AI), and Cybersecurity. We also actively collaborate with various higher education institutions and industries, both domestically and internationally, to provide students with opportunities to engage in real-world projects that enhance their experience and skills.

Graduate Profile:

- Graduates have the ability to analyse, design, create, and evaluate information systems that are innovative and align with digital enterprise goals.
- Graduates are able to comprehend, apply, and integrate system models, and use methods and various business process improvement techniques that bring value to the organization in line with digital enterprise goals.
- Graduates have the ability to analyse, design, create, and evaluate the design of infrastructure tools that align with digital enterprise goals.

- Graduates have the ability to perform their duties professionally based on national values and the teachings of Islam, rahmatan lil'alamin, that create sustainability and peace in the digital enterprise."

For the Bachelor's degree programme Mathematics Education the institution has presented the following profile on its website:

"Students who study here will be equipped with religious values and akhlakul karimah, Mathematics Science, science of teaching school mathematics, school mathematics materials, ICT in learning mathematics. The undergraduate mathematics education study program also provides opportunities for students to develop soft skills and Interprofessional Education (IPE) through school internship activities, School Introduction Practice (PLP), Field Experience Practice (PPL) and KKN activities. In addition, students are also given the opportunity to participate in internship programs and the Government Program, namely Merdeka Belajar Kampus Merdeka (MBKM) in several Government Agencies and other partners.

Graduate profile:

- Graduates can plan, implement, and evaluate mathematics learning at the secondary education level (Junior high School and Senior High School).
- Graduates can conduct research in the field of mathematics education and the development of learning tools based on Information and Communication Technology (ICT)
- Graduates can create business opportunities in the field of mathematics education."

C Expert Report for the ASIIN Seal[4]

1. The Degree Programme: Concept, Content & Implementation

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

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Objective-module-matrix per programme
- Websites of all study programmes
- Curriculum Guidebook per programme
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The programme learning outcomes and objectives can be found on the websites of the three study programmes, in the respective Curriculum Guidebook and Diploma Supplement as well as in the Self-Assessment Report. Furthermore, the university submitted an objective-module-matrix for each study programme, which can also be found in the Curriculum Guidebook.

According to the Curriculum Guidebook, graduates of the Bachelor's programme in Informatics should possess the following competences:

- "Pious to God Almighty, law compliance, and disciplined in social and state life

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

- Demonstrate professional attitudes in the form of Institution/University, adherence to professional ethics, ability to collaborate in multidisciplinary teams, understanding of lifelong learning, and responsiveness to social issues and technological developments
- Have adequate knowledge of how computer systems work and able to apply/use various algorithms/methods to solve problems in an organisation.
- Have the competence to analyse complex computing problems to identify solutions for managing technology projects in the field of informatics/computer science by considering insights of the development of transdisciplinary science.
- Mastering the theoretical concepts of Computer Science / Informatics knowledge in designing and simulating multi-platform technology applications that are relevant to the needs of industry and society.
- Possess team management and teamwork skills, self-management, good oral and written communication skills, and presentation skills
- Compile a scientific description of the results of the study of the implications of the development or implementation of science and technology in the form of a thesis or report final project or scientific article.
- Ability to implement computing needs by considering various appropriate methods/algorithms.
- Ability to analyse, design, and evaluate user interfaces and interactive applications by considering the needs of users and the development of transdisciplinary science.
- Ability to design, implement, and evaluate multi-platform computing-based solutions that fulfil the needs computing in an organisation.
- Able to identify problems and formulate computational solutions for problems in the health and medical fields.
- Implementing the values of Islamic teachings called rahmatan lil'alamiin."

In terms of the programme learning outcomes of the Bachelor's programme in Information Systems, the Curriculum Guidebook lists the following competences:

- "Able to understand, analyze and assess basics concepts and role of information systems in managing data and providing decision-making recommendations on organisational processes and systems.
- Able to design and use databases, as well as process and analyze data with data processing tools and techniques.

- Able to understand and utilize various system development methodologies along with system modelling tools and analyse user needs in building information systems to achieve organisational goals.
- Able to plan IT infrastructure, designing network architecture, physical and cloud-based services, and evaluating the concepts related to identification, authentication, access authorization in the context of protecting individuals and devices.
- Able to comprehend and adhere to ethical coding practices when working with information and data in the design, implementation, and utilization of systems.
- Have the ability to plan, implement, maintain and improve organisational information systems to achieve strategic organisational goals and objectives both in the short and long term.
- Able to understand, identify and apply concepts, techniques and methodologies of information systems project management.
- Able to analyze, design and evaluate business processes for business sustainability in accordance with the development of the era.
- Capable of manifesting a devoted attitude towards God Almighty in alignment with the principles of Islamic teachings, characterized by "Rohmatan lil'alamin" (embracing Pancasila, guided by the law of love for others, promoting tolerance, and avoiding radicalism). Additionally, demonstrating an entrepreneurial spirit, independence, and leadership grounded in norms, values, and ethics, along with a commitment to professionalism and responsibility."

According to the Curriculum Guidebook, graduates of the Bachelor's programme in Mathematics Education should possess the following competences:

- "Students are able to show devotion to God Almighty and love for the country and appreciate cultural diversity
- Students are able to internalize academic norms and ethics.
- Students are able to analyse the theoretical concepts of mathematics that support mathematics learning in primary and secondary education and for further studies
- Students are able to analyse educational theories, as well as research methodology and curriculum in the field of mathematics education
- Students are able to implement pedagogic-didactic concepts in the field of mathematics
- Students are able to develop ICTbased mathematics learning innovations
- Students are able to conduct research in the field of mathematics education

- Students are able to design entrepreneurial activities in the field of mathematics and mathematics education
- Students are able to demonstrate communication skills, collaboration, and critical and creative thinking skills."

The following table, taken from the self-assessment report, illustrates the potential professions of graduates of the three programmes.

Table 1.3. Examples of Occupation for the IS, INF, and ME Graduates

IS	INF	ME
Data Administrator, Data Analyst, Security Executive/Information Security, System Architect/ IT Auditor, Business Analyst/ Project Manager, SysAdmin/ Computer Support, Systems Analyst, Application Developer	Software Engineer, Web Developer, Cloud Computing Developer, Advance Mobile Computing specialist, Instructor and Research Assistant in the field of Informatics/Computer Science.	Mathematics teacher, Developer of Learning Multimedia for Mathematics Learning, Gamification Developer, Data Analyst (statistics),

The experts confirm that the intended learning outcomes are transparently anchored and published and thus are available to students, lecturers and interested third parties. They also agree that the learning outcomes are described in a clear and concise manner. Furthermore, the experts verify that the level of the objectives and intended learning outcomes of the three programmes adequately reflect EQF level 6 and that they meet the ASIIN Subject Specific Criteria (SSC) of the Technical Committees of Computer Science and Mathematics.

Nevertheless, the experts see a need for further clarification of the focus and goals of individual study programmes. Hence, they discuss with the university representatives' in the audit the striking similarities between the Information System and Informatics programmes and why they are kept as two different programmes instead of offering them as a common programme with different specializations. The programme coordinators explain that while the two programmes are built on the same fundamental knowledge, which are taught at the beginning of the two programmes, they have clearly distinguished objectives, which lead to different qualification profiles. The Information System programme focuses on the field of Digital Enterprise i.e. how digital technology can be utilized to optimize and innovate business processes, products, and services. The Informatics programme, in contrast, focuses on data science and software engineering, particularly on medical and health informatics. The experts appreciate the clarification provided by the programme coordinators, together with the revised documents submitted by the university in the course of the

accreditation process, which underline the different objectives of the programmes. They note that the two programmes now each demonstrate a clear purpose and provide students with an appropriate qualification profile that will enable graduates to find appropriate employment both in Indonesia and globally.

In terms of the Mathematics Education programme, the experts equally inquire the main objective of the study programme. The programme coordinators clarify that students are trained to work as teachers in primary and secondary schools, whereby the focus is on secondary education. The experts confirm that this in line with the documented learning outcomes and objectives and in most parts with the curriculum; however, there are various modules integrated in the programme, which do not seem relevant for a Mathematics teacher in schools such as “Game Design” and “3D Animation”. The programme coordinators explain that these modules are included for two reasons. On the one hand, they are intended to support students in developing innovative teaching skills and methods and, on the other hand, to enhance students' general competences in high-demand disciplines related to mathematics. The experts understand the programme coordinators’ arguments. Yet, as discussed in more detail in chapter 1.3 of this report, they find that the integration of other content (such as Applied Mathematics) would be more beneficial for students and future teachers than these IT related modules.

The industry partners report during the on-site visit that they are generally satisfied with the qualification profile and level of the graduates. They also explain that Universitas Alma Ata regularly consults them with regard to the learning outcomes and curricula in order to ensure that these are in line with the demands of the industry and reflect the newest technological developments. The experts are pleased to learn about the ongoing involvement of industry partners in programme review. They learn that, in general, each programme is reviewed every four to five years, which includes a comprehensive analysis of learning outcomes, objectives and course content. In addition to industry partners, the review also takes into account feedback from students, alumni, external reviewers and other interested parties.

In conclusion, the experts believe that the learning outcomes of the three degree programmes adequately reflect the intended level of academic qualification and correspond with the ASIIN Subject-Specific-Criteria (SSC) of the respective technical committees. They also confirm that Universitas Alma Ata has established a systematic review of study programmes, including their programme learning outcomes and objectives.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report
- Diploma Supplements

Preliminary assessment and analysis of the peers:
The experts confirm that the English translation and the original Indonesian names of the three degree programmes correspond with the intended aims and learning outcomes as well as the content of the respective degree programme.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plans
- Module descriptions
- MBKM Guidelines
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Content & Structure of the Programmes

All three Bachelor's programmes have a duration of eights semesters. Each study programme consists of so-called university modules, faculty modules, study programme modules, and elective modules. University modules are modules that are mandatory for all students at Alma Ata (examples are "English Language" and "Pancasila"). Faculty modules are required within the study programmes offered by the faculty. The Information Systems and Informatics study programmes include faculty courses from the Faculty of Computer and Engineering, while the Mathematics Education study programme includes faculty courses from Faculty of Tarbiyah and Teacher. Program subjects are mandatory courses provided by the study programme. Elective courses, on the other hand, are offered by the study programme and can be selected by students based on their specialisation. All students are allocated an academic advisor at the beginning of their studies, who also helps them with creating a study plan and choosing matching electives.

The three Bachelor's programmes share a similar structure. The first four semesters are dedicated to the basics of the respective discipline and a deepening of technical skills. Starting from the fourth semester, students can choose a specialization and corresponding electives that align most with their interest and desired occupation. In Informatics, students can choose between the specialisations Data Science and Software Engineering. The total number of electives in this programme is 24 SKS. In Information System, students have the

choice between the specialisations of Digitalpreneur, System Integrator and Enterprise Planner. The total number of electives is 32 SKS. The Mathematics Education programme offers the specialisations ICT-based Mathematics Learning, Statistics and Linear Algebra. Here, students can choose four electives comprising a total of 10 SKS.

In the Informatics and Information System programme, students are also required to attend a "Field Work Lecture" in the seventh semester. The Field Work Lecture is part of the Independent Campus Learning Programme (MBKM). MBKM is a programme organised by the Ministry of Higher Education, Research and Technology. Essentially, the MBKM programme offers students the opportunity to learn outside of their degree programme. This includes student mobility, internships in schools, research institutions and companies, humanitarian projects or independent projects. The activities can be converted into student credits up to a maximum of 20 SKS. In the case of the Field Work Lecture at Universtas Alma Ata, the field practice usually implies an internship in the professional field of the respective study programme. It lasts four weeks and is worth 3 SKS. Another MBKM element integrated into all three programmes is the Community Service (3 SKS). In this module, students live in a community/village and participate in solving problems in cooperation with locals as well as students from other study programmes at Universitas Alma Ata.

Unlike the other two study programmes, students of the Mathematics Education programme are required to complete three internships. All three internships are carried out at a primary or secondary school. The first two internships are one week each and usually take place during the summer break after the first and second academic years. In the first internship, students take an observatory role and learn about the administrative side of teaching such as the development of academic calendars, schedules, daily work plans, etc. In the second internship, students practice the administrative tasks themselves by creating, for example, study plans, syllabi, and student handbooks. In the third internship ("PPL"), which also lasts one month according to the module descriptions, students actually take over the role of teachers and practice teaching at a school. In the audit, the expert learn though that the PPL practice actually takes two months instead of one.

In the eighth semester, students of all three Bachelor's programmes have to complete a thesis, which according to the module description lasts four months and is awarded six SKS. Here too, the experts learn in the audit that the thesis actually spans six months instead of four.

The experts review the curricula and find that the three programmes are of high quality, meet international standards in Computer Science and Mathematics, respectively, and cor-

respond to EQF level 6. They also note that the three programmes cover the subjects essential to the discipline and provide a solid education for students in applied Computer Science and Mathematics Education, respectively.

However, as mentioned above, the experts note that there are various elective modules in the Mathematics Education degree programme, such as “Game Design” and “3D Animation”, which do not seem to be very relevant for the training of mathematics teachers in schools. On the other hand, the experts miss content on applied mathematics, including modelling and optimisation, which they consider highly useful for future mathematics teachers to show their pupils the application of mathematics in reality. The experts therefore recommend reducing the number of less subject-related modules and increasing the content in applied mathematics.

When reviewing the module handbooks of the three degree programmes, the experts come across some module descriptions that refer to outdated content and/or literature. For example, they refer to the ‘Computer Programming’ module in the Mathematics Education degree programme, which uses secondary literature on the programming language Pascal. In the audit, the experts learn that this is an error and that students are taught Python as a programming language in the Mathematics Education as well as Informatics and Information System programmes. The experts welcome this fact and demand that all module descriptions be reviewed and updated to reflect the actual content taught and the literature actually used in teaching.

Furthermore, when examining the module handbooks of the Informatics and Information System programmes, the experts notice that several modules in the two programmes have the same module code and are taught by the same teacher, but the content description of these modules is different. On the other hand, there are modules that have different module codes but the content description is identical. For example, the experts refer to the modules “Data visualization” (INF045, SI 083) and “Data Mining” (INF 0288, SI 074), which appear in both programmes with the same title taught by the same teacher but with different content descriptions. Then again, there are modules such as FKOM006 “Web Programming” (FKOM006) and “Software Engineering” (FKOM001), which should be the same in both programmes, but have different descriptions. What adds to the confusion of the experts is that, as mentioned above, there are compulsory courses that are offered to all students across the faculty and are therefore identical, but there seems to be no indicator as to which modules belong to this category and why apparently identical courses seem to be offered separately. The programme coordinators explain that there are modules offered in both programmes that appear to be very similar, but are in fact not identical, as they are adapted to the respective subject and perspective of the programme. The experts appreciate the explanation, but ask that in this case the distinction between these similar modules

be made clear in the documents. They also point out that the documents, in particular the module descriptions, do not clearly indicate which modules are compulsory and which are optional. The documents must therefore indicate whether modules are elective or compulsory and whether they belong to the categories of university, faculty or programme modules. In addition, the experts suggest increasing the synergies between the Informatics and Information System programmes by merging very similar modules and offering them jointly to students on both programmes. While the experts agree that some modules benefit from a stronger focus on the subject, they believe that other modules that offer basic content that serves the same purpose for both programmes could be combined into one module offered to both students. which is particularly beneficial for teachers who are also working towards a doctorate, as explained in more detail in chapter 3.1.

In terms of the structure of the study programmes, expert group confirms that the three programmes are overall well organised and structured so that students achieve the intended learning outcomes. Nevertheless, the experts identify a number of aspects in the three programmes that could be improved. For example, the experts find that the internships are too short for students to gain in-depth practical experience, and that they appear to be rather disjointed; this is particularly the case in the Mathematics Education programme. The audit discussions though reveal deviations in the actual structure and organisation of the internships from the description in the documents. For example, as mentioned above, the experts learn that the PPL placement in Mathematics Education actually lasts two months instead of one. Furthermore, the Programme Coordinators for Mathematics Education explain that there is a strategic structure of the internships that links the three internships and ensures that the practical skills of the students are systematically developed with each internship. They clarify that for once, the internships must be taken in a specific order, which enables a coherent development of the students' skills. Furthermore, they learn from the students that they do report on their practical experiences from the internships to their academic advisors in order to discuss their performance and identify ways to improve. Students also inform the experts that they are assessed throughout their internships by the advisor from the respective school and that this assessment is then reviewed by the academic advisor from Universitas Alma Ata. The experts welcome all these findings but point out that these are not documented. They therefore insist that documents (particularly the module handbook) be revised to reflect the actual length of internships and that they are structured in a way to ensure a steady and coherent learning progression for students. Furthermore, the module descriptions have to include more detailed information on the specific tasks that are carried out by the students during the internships and on the follow-up process between academic advisor and student in which

both discuss the learning experience and performance of the student. They also urge Universitas Alma Ata to clarify the information on the assessment of the internships and describe it in more detail. Finally, the experts consider that the total duration of 2.5 months of practice in the Mathematics Education programme is rather short for a teacher's training and therefore recommend that the duration of the internships in schools be extended so that students have more opportunities to practice and prepare for their future careers as teacher.

With regard to the Informatics and Information System programmes, the experts notice similar shortcomings such as an insufficient documentation of the structure and assessment of the internships as well as of students' exact activities during these practical periods. Here again, they urge teachers and programme coordinators to include a follow-up process between academic advisor and student to discuss the practical learning experience of the student. It is for these reasons that the experts conclude that the above-mentioned requests for the Mathematics Education programme also have to be implemented and transparently documented in the module handbooks for the Informatics and Information System programmes.

After carrying out the audit discussions, the experts also gain the impression that students as well as teachers in the Informatics and Information System programmes would benefit from a stronger cooperation with the industry. Some students report having difficulties finding an adequate internship at a company despite the fact, that Universitas Alma Ata offers students support with finding a suitable company. The experts also learn that only very few students carry out their final thesis at a company but instead at the university. Both students and teachers also remark in the audit that a closer connection to the industry would be appreciated. Currently, the university and the three programmes do cooperate with several companies, which are also involved in the programme review. However, the experts believe that greater cooperation would contribute to more internships and dissertation placements and also increase the number of research projects undertaken by teachers. The latter is discussed in Chapter 3.1.

Student Mobility

Universitas Alma Ata offers its students mobility activities both internationally and domestically. One way to achieve mobility is through the MBKM programme, which offers a wide range of partner institutions in Indonesia and abroad. In order to participate in the mobility programme, students have to apply for a place at their chosen destination. Students can access the official guide book describing the MBKM offers and mobility procedure online. In general, student mobility activities can last from one to a maximum of six months and be recognized maximum 20 SKS.

The Faculty of Computer and Engineering also has a cooperation agreement with various universities in Malaysia (e.g. Technical University of Malaysia) and a university in Thailand (Prince of Songkla University). Regarding credit transfer, the experts learn that before each mobility, a credit agreement is signed between the student, Universitas Alma Ata and the partner university to ensure that all achievements are recognised. The university provides statistics showing that six students from Information System, ten students from the Informatics, and ten students from the Mathematics Education programme have participated in student mobility in the last three years. Students report in the audit that they are aware of mobility opportunities and that members of staff help them in the preparation process, including the selection of appropriate modules for recognition. However, the main factor restricting the number of students going abroad is the limited number of scholarships or other financial support from Universitas Alma Ata for student exchanges. The experts can understand this, but also the limited financial means of the university to support student mobility. Overall, experts find that the university provides adequate exchange opportunities and support for students planning to go abroad.

Periodic Review of the Curriculum

Universitas Ama Ata reports that all its programmes are regularly reviewed on a cycle of four to five years. The curriculum review process is documented in the quality management manual. The first step is for faculty and programme coordinators to identify developments in technology and science, changes in societal and industry needs, and updates in government policies and regulations. This is followed by meetings with various external stakeholders such as alumni, professional associations, industry partners and experts, and internal stakeholders (students and teachers).

The results of the curriculum review are manifested in revised curricula and programme learning outcomes. After being reviewed by the Dean and the Vice-Rector for Academic Affairs, the drafts of the revised curricula are submitted to the Senate for approval by the Chancellor.

The experts acknowledge the systematic review of curricula, which takes into account internal and external stakeholders and updates in technology and science. They consider that the system in place is adequate to ensure continuous monitoring of the quality of the programmes.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report

- Discussions during the audit
- Guidebook on the Admission Regulations
- Guidebook on the Admission Regulations for International Students
- Universitas Alma Ata website: https://registrasi.almaata.ac.id

Preliminary assessment and analysis of the experts:
There are three ways for students to be admitted to one of the three Bachelor's programmes under review. The first route is through academic achievement and the results of their final school examinations. The second way is through outstanding non-academic achievements of so-called "Regional Excellence Candidates". The third route is through a computer-based written test. Students either take the National CBT (Computer-Based Test) or the Alma Ata CBT. In both cases, students must score a minimum of 450 points. Since Alma Ata is a private university, students also must pay the tuition fees in order to be admitted to the desired programme.

The admission cycle for new students begins at the beginning of October and ends at the end of August of the following year. The cycle is divided into four periods. Period 1 runs from October to January, Period 2 from February to April, Period 3 from May to June and Period 4 from July to August. However, the registration cycle may be closed if the quota of prospective students for the programme has been reached. The academic year begins in September. The entire admission process and requirements, including possible pathways and timelines, are published on the Alma Ata University website and are available to all interested parties.

International students can apply online. Documents required from international students include their high school transcript and a certificate of English language proficiency (IELTS or TOEFL) taken within the last two years. Applicants transferring from other programmes will be subject to an assessment process and their credits will be recognised if they meet the intended learning outcomes of the programme. Detailed information on the admissions process for international and transfer students is also available on the University's website.

According to the statistics, the maximum intake capacity for the Mathematics Education programme is 60 students per cohort. On average, about 45 students are admitted per cohort, of which 9 students graduate. In Informatics, the maximum intake capacity is 65 students and on average 54 students start the programme, of which 5 students successfully complete the programme. Finally, the Information System programme has a maximum intake of 85 students. On average, 77 students are enrolled and 5 students successfully complete the programme.

During the audit, the experts ask the rectorate about the significantly low number of graduates compared to the size of the starting cohort. They learn that these figures refer only to students who graduated in the intended time and not to all graduates of the starting cohort. After the audit discussions, the HEI submits revised data, which show all graduates of the three programmes disregarding of their study duration. The data reveals that the actual percentage of graduates, who have successfully completed their programme, is about 91% in Informatics, 89% in Information System, and 97% in Mathematics Education. The experts are glad to hear that the success rate is higher than originally indicated and find these numbers to be acceptable. Nonetheless, the experts learn that many students take longer than the intended time to complete their studies for a variety of reasons, including poor academic performance, heavy involvement in extracurricular activities, or financial reasons that prevent students from continuing their studies. For example, students in the Information Systems programme need an average of 8.6 semesters to complete their studies, in Informatics it is also 8.6 semesters, and in Mathematics most students graduate on time. The Rector's Office adds that, in response to the observed delay in graduation, they have already implemented a warning system that tracks students' grades and alerts teachers and students when the students' grades start to deteriorate. The experts welcome the strategies implemented to reduce the length of studies. However, they point out that the cohort statistics do not provide precise information on the exact length of study for students in each cohort, but only a figure for the average length of study per programme for all cohorts. Therefore, the figure for the average length of study cannot be verified by the experts. For this reason, the experts recommend that the cohort statistics be revised and clarified.

Besides, the experts appreciate that Universitas Alma Ata has already developed and implemented a strategy to address the delay in graduation of students. The students confirm in the audit that there are no structural challenges in the study programmes that lead to prolongation of studies and that they consider the admission requirements and the admission procedure to be adequate and transparent. The experts agree with the students and consider the admission requirements to be appropriate and supportive of students achieving the intended learning outcomes of the programme. They note that the admission requirements, including the rules for the recognition of external qualifications, are binding and transparent for all stakeholders and correspond to Lisbon Convention.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report
- Study plans

- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The credit system at Universitas Alma Ata follows the National Standards for Higher Education of Indonesia, in which all programmes use a credit point system called SKS. According to this, 1 SKS is awarded for 170 minutes of workload per week divided into 50 minutes contact time/classes, 60 minutes structural assignments, and 60 minutes individual studying. This calculation of 1 SKS equalling 170 minutes of workload applies to all teaching forms including practicums, field trips, etc. Each semester spans over 16 weeks. The conversion from SKS into ECTS is defined in the Chancellor Decree. Accordingly, 1 SKS is equivalent to 1.57 ECTS (when 1 ECTS corresponds to 25 hours). The following table illustrates the credit calculation:

Table 1.8. Forms of Learning and Conversion of Credit Load into Time

Forms of Learning	Calculation of Conversion
Theoretical Learning 1 Credit of theoretical learning consists of: • 50 minutes of in-class study per week in one semester; • 60 minutes of structured assignments per week in one semester; and • 60 minutes of self-study per week in one semester	Student credit is expressed in Semester Credit Units as follow: • 1 Credit = 170 Minutes/ Week/ Semester. • 170 minutes x 16 weeks = 2.720 minutes = 45 Hours. • 1 semester = 16 weeks including 2 weeks for midterm and final exams.
Practicum 1 Credit for practical activities in the laboratory or field is equivalent to 170 minutes/week, which includes preparation, practical activities in the laboratory or field, and assignments related to practical activities. Other types of learning include internships, student exchanges, research, and community service.	

The Bachelor's programme in Information System comprises 147 credits or 231 ECTS. The Bachelor's programmes in Informatics and Mathematics Education comprise each 144 credits, which equals 226 ECTS points. The experts note that the workload is evenly distributed over the entire duration of each Bachelor's programme which are eight semesters. On average, students take 20 - 22 SKS per semester. The number of courses taken by students, and therefore their workload per semester, is controlled by the academic supervisor, the

programme director and the faculty administration. However, students may take a higher workload depending on their performance.

The experts find that the three programmes under review use a sound credit system that takes into account both contact hours and self-study time. They also confirm that the calculation of credits awarded for each module is correct. However, they found an error in the conversion from SKS to ECTS. Thus, if 1 SKS is awarded for 45 hours of total workload, 1 SKS actually corresponds to 1.81 ECTS (if 1 ECTS is awarded for 25 hours). Therefore, the conversion rate has to be adjusted and the correct numbers of ECTS have to be changed in all documents. Furthermore, as mentioned above, the experts find out during the audit discussions that the internships are actually longer than indicated in the module descriptions. When revising the length of the internships in the documents, the staff must also check that the new length is consistent with the credits awarded for the internships.

During the audit, students report that the workload is generally appropriate and in line with the workload indicated in the module descriptions and the credits awarded. However, the experts learn that there is no systematic monitoring of student workload. Students explain that they can complain if the workload becomes too heavy and that teachers usually respond quickly to student feedback. Sometimes teachers also ask them about their workload in class. However, students are not regularly asked in a systematic way whether the workload actually corresponds to the officially defined workload. For this reason, the experts require Universitas Alma Ata to establish a formal and systematic monitoring of students' workload, in particular their self-study time, and to compare it with the workload indicated in the module descriptions. This can be done, for example, through surveys in which students are asked how much time they actually spend on each module. In case of discrepancies between the expected and actual workload, Alma Ata has to ensure that the credits awarded are in line with the total workload of the students.

Moreover, during the audit, the experts learn from teachers and programme coordinators that students actually spend the entire final semester, i.e. six months, working on the thesis project. However, according to the module descriptions, students only receive six credits, which is equivalent to 270 hours. For this reason, the experts insist that the credits for the thesis be reviewed and brought into line with the actual workload of the students.

Apart from the thesis project, the experts consider the general workload estimates to be realistic and well-founded, which is confirmed by students' statements. Nevertheless, they believe that it is crucial to monitor the actual workload, especially in the light of the fact that students tend to study longer than planned. Thus, they urge the university to introduce a formal system to monitor the actual workload of students and, if necessary, to make adjustments to the credits awarded.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the experts:

According to the self-assessment report, teaching methods are chosen on the basis of the characteristics of the course and the intended learning outcomes. The suitability between the intended learning outcome of the course and the implementation of the teaching method is regularly evaluated.

The module descriptions of the three programmes show that a variety of teaching and learning methods are used, such as lectures, practical work, seminars and projects. In addition, each of the three programmes includes mandatory field work/internships to be carried out in the industry (Informatics and Information System programmes) or school (Mathematics Education programme). The teaching and learning methods used consist of case-based study, project-based learning, problem-based learning, small group discussions, presentations, homework and independent study. Projects require students to work in small groups to solve a problem together, developing their communication, leadership and teamwork skills. Students also report to have the chance to strengthen their scientific skills by participating in research projects of their teachers. In-class teaching is supported by the online Learning Management System (LMS) developed by the university providing students with all course-related information including course material and assignment tools.

Students report that they are satisfied with the different forms and methods of teaching. They confirm that the teaching methods are student-centred and that the teachers are very committed to helping students when they have difficulties in learning the subject matter.

In summary, the expert group considers that the teaching methods and tools are appropriate to support students in achieving the intended learning outcomes. They confirm that the programmes include a variety of teaching and learning methods and practical elements adapted to the specific subject culture and study format.

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

As the timeframe does not allow the university to provide a comment on the report, the experts' assessment as shown above remains unchanged.

Criterion partly fulfilled.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Examination Regulations
- Thesis Guide
- Self-Assessment Report
- Sample exams & theses
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the experts:
According to the module descriptions, there are three main types of assessment in the three study programmes under review: assignments, mid-term and final exams. Mid-term and final exams are usually in the form of written exams. Assignments are a form of continuous assessment in which students are required to submit their solutions to certain assignments on a regular basis. Mid-term exams are held in the eighth week of the semester and final exams are held in the 16th week of the semester. Each written examination lasts 100 minutes in all Bachelor programmes. In order to be admitted to the final exam, students must have attended at least 75% of all teaching sessions. The detailed examination schedule is published at the beginning of the semester as part of the general academic calendar.

In the case of internships, students are assessed on the basis of their practical performance and their internship report, which is usually combined with a presentation. The grade is combined by the evaluation given by the academic supervisor and the industrial/school supervisor.

Since it seems that almost all examinations are carried out as a written exam, the experts ask about other forms of assessments in the three programmes. They learn that in modules involving project-based learning, students are indeed assessed on the basis of their project work and a presentation. The experts are informed that there are also other modules, such as “Microteaching” in Mathematics Education, where students are required to give presen-

tations. The experts welcome the integration of project-based assessments and presentations in the three programmes. After reviewing several examination samples, they conclude that the variety of assessment forms used in the three programmes under review is adequate to assess the achievement of course and programme learning outcomes and corresponds to EQF level 6. Nonetheless, they insist that the module descriptions be revised to reflect the assessment methods actually used, as none of the module descriptions currently indicate the use of project-based assessments or presentations. For example, the description of the module “Microteaching” in Mathematics Education only refers to 'dissemination of results' as the form of assessment.

In terms of the grading of student assessment, the expert team learns that the grades will be announced through the student portal. The final grade for a course is represented by a letter grade and a corresponding numerical value as follows: A = 4; AB = 3.5; B = 3; BC = 2.5; C = 2; D = 1; and E = 0. If a student believes the grade received is unfair, they may file a grade complaint, as outlined in the examination regulations.

If a student is declared to have failed the course, he/she will retake a specially designed examination to enable the teacher to assess whether the student has understood the tasks in which he/she previously failed. If the student also fails this resit, they will be required to repeat the course in the following year. Typically, students in this situation receive guidance and monitoring from their academic advisors to help them improve their grades and complete their studies on time. Where students have passed but received a low grade, they may request a meeting with teachers to discuss or explain how to solve the questions and why certain answers are correct or incorrect. Students may also be given the opportunity to take remedial examinations.

If a student is unable to take a scheduled examination due to illness or other valid reasons, they are entitled to take a rescheduled examination within the same semester. With regard to students with special needs, the university recognises that there are currently no specific regulations describing compensation mechanisms. However, in the audit discussions, the programme coordinators add that Alma Ata has a policy of providing ideal study conditions for all its students, including those with special needs. The experts appreciate Alma Ata's inclusive policy, but insist that the university establishes transparent rules for compensation mechanisms for students with special needs.

In the audit, students report to be satisfied with the examination system for all three study programmes. They confirm that they receive all relevant information such as examination dates and assessment criteria at the beginning of the semester. When asked about the workload and the difficulty of the examinations, students say that both are appropriate and manageable.

The experts share the opinion of the students: After reviewing the documentation and examinations, they conclude that Universitas Alma Ata has a sound and transparent examination system. They particularly welcome the support given to students by teachers for underperforming students and the opportunity to re-take exams.

To complete the Bachelor's programmes, students have to carry out a final thesis/project in the eighth semester, which is worth 6 SKS. As mentioned above, the module descriptions indicate a duration of four months, while the Alma Ata members explain in the audit that the thesis is supposed to last six months. All the rules concerning the thesis are described in the Thesis Guide.

The experts learn that most students carry out the thesis at the university. The process of determining the topic usually begins with discussions between the student and their academic supervisor, in which the student's research interests are identified. In addition, as a prerequisite for the thesis, students on all three programmes must complete the Research Methodology module in the fifth semester. Here, students not only learn the basics of academic research and writing in preparation for the thesis, but also draft their first thesis proposal. Based on the student's research interests, the academic supervisor will assign a thesis supervisor to the student. Students will then consolidate their research topic in a research proposal seminar. Throughout the thesis process, students are required to meet regularly with their thesis supervisor (at least 12 times). The thesis process concludes with the student's defense presentation, which is worth 20% of the final thesis grade.

During the on-site visit, the experts review a few samples of the thesis. They confirm that the samples show that the students are able to work scientifically and carry out a project independently. They also agree that the level of the samples corresponds to EQF level 6. However, the expert group notes that the module description of the final thesis does not reveal the concrete procedure of the thesis. For instance, it does not stipulate the mandatory completion of the research proposal seminar or a thesis defense. For this reason, it has to be ensured that the module description includes detailed and precise information about the entire thesis procedure, including the correct length, workload and credits of the thesis module. In addition, as discussed above, the experts observe that few students complete their final project in industry. They refer back to their recommendation to increase cooperation with industry so that students receive more opportunities to write their thesis in a company.

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

As the timeframe does not allow the university to provide a comment on the report, the experts' assessment as shown above remains unchanged.

Criterion fulfilled.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report
- Staff Handbook
- Study plans
- Module descriptions
- Discussions during the Audit

Preliminary assessment and analysis of the experts:
According to the self-evaluation report, there are seven teachers in the Information System programme, one of whom has a PhD, and five teachers in the Informatics programme, of none of whom currently has a PhD. In the Mathematics Education programme, there are eight teachers, of whom four have a doctorate degree. The permanent teaching staff is supported by part-time teachers from outside Alma Ata. Thus, there are 14 supporting lecturer (five with a PhD) in Information System, 19 lecturers in Informatics (seven with a PhD), and ten lecturers (ten with a PhD) in Mathematics Education. Consequently, the student-teaching staff ration in the three programme is as follows: 1:10 in Information System, 1:9 in Informatics programme, and 1:5 in Mathematics Education. This is in line with the Regulation of the MoEC of Indonesia. Every teacher is regularly reviewed in terms of their teaching performance by the head of the faculty and the programme coordinators.

In order to improve the qualification level of the teaching staff, Alma Ata has established a new recruitment policy a few years ago. This regulation stipulates that every teacher must be registered in a PhD programme within two years after starting contract as a teacher at Alma Ata. In addition, each applicant for a teacher position at Alma Ata must have at least a Master's degree and provide a list of previous publications. The experts learn that the university also awards scholarships to distinguished teaching staff to pursue doctoral programmes at universities in Indonesia or abroad.

The teachers explain during the audit that the distribution of a teacher's workload depends on the teacher's position. On average, a teacher spends about a third to half of the week on teaching, a third on research and the rest on administration. In order to promote teachers' research activities, a decree was introduced in 2020 requiring each teacher to publish at least one scientific paper per year. The experts also learn that the rectorate of Alma Ata supports research activities by offering financial rewards for publications. Another reward mechanism is an internal competition for the title of Employee of the Year. Teachers indicate in the audit that they feel well supported by the university in terms of teaching and research, and that their workload for teaching and research is adequate.

The experts assess the composition, professional orientation and qualifications of the teaching staff and conclude that they are suitable for successfully delivering the degree programmes at the intended level. They particularly welcome the university’s strategies to improve the qualification level of the teaching staff. However, they note that the number of publications per programme is still relatively low, with eight papers in international journals published by Information System department, eight by Informatics department and fourteen by Mathematics Education department since 2021. As several teachers are currently working on a doctorate, the experts ask whether the teaching load is reduced when working on a doctoral project at the same time. The teachers explain that only those with a scholarship from Alma Ata, which is a limited number of people, receive a reduction in teaching hours. In order to give doctoral students more time for their research project and publications, and thus speed up their process, the experts recommend that all doctoral students receive a reduction in their teaching load.

The experts also suggest that Alma Ata's cooperation with other higher education institutions abroad should be strengthened in order to increase the number of research projects and the academic profile of the teaching staff. They learn that there are already cooperation agreements with other universities, mainly in South-East Asia, but feel that there should be a stronger international network and more international exchanges, for example in the form of guest lectures.

In terms of development, the experts learn that each of the three programmes has defined its academic development plan for lecturers. As part of the academic development plan, teachers are actively encouraged to obtain teaching certificates organised by the Indonesian Ministry of Higher Education, such as Tridharma Perguruan Tinggi and PEKERTI. According to the self-assessment report, teachers also receive financial support from Alma Ata to attend various training courses to improve their teaching skills. Teachers report during the audit that they regularly take advantage of opportunities both within Alma Ata and from other institutions to develop themselves.

The experts appreciate the university management's support for staff development and consider the provision to be adequate. However, they suggest that foreign language skills, especially English, should be included in the training repertoire of Alma Ata in order to support a stronger international orientation of the staff and the university.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report
- Discussions during the Audit

Preliminary assessment and analysis of the experts:
In the self-assessment report, the university describes the different mechanisms it has in place to provide academic and non-academic services to support students. At the level of academic support, students can rely on the Directorate of Learning Assistance, which helps with practical/administrative matters of university life, and the Centre for Information System and Digital Technology, which helps with access to resources and information technology, such as email, portal applications, etc. Other facilities include the Language Training Centre and the Career Service Unit for Students and Graduates. Other facilities include the Language Training Centre and the Career Service Unit for Students and Alumni, which helps students with internship management and finding suitable employment after graduation. In addition, each student is assigned an Academic Advisor who can be contacted throughout their studies.

If students need non-academic student support, they can contact the Student Affairs Department, which is the university's central unit for student support. They offer various health and welfare services, such as psychological counselling and health services through the Alma Ata Medical Centre. The Office of International Affairs assists both outgoing and incoming students in all stages of mobility. In addition, students have the opportunity to participate in the UAA Student Executive Council, a student organisation that provides a platform for students to engage in organisational development. Finally, students can apply for internal and external scholarships.

The experts consider that there are sufficient resources to provide individual guidance, counselling and support to all students. The support system helps students to adapt to the university environment, to achieve the intended learning outcomes and to complete their studies successfully. Students report being well informed about and satisfied with the services available to them.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Universitas Alma Ata is a private higher education institution and therefore largely generates its income from tuition fees. Other sources of income are grants from the government (e.g. research grants, education funds, community service grants, etc.) and funding from other non-ministerial institutions such as industry partners both nationally and internationally. The experts learn during the audit that about a third of all teachers at Alma Ata are certified by the ministry for higher education and therefore receive financial support from the government. In addition, the experts are informed that currently Alma Ata is in the process of becoming more entrepreneurial and offering services such as workshops and consultancy services.

According to the self-assessment report, programme funding is first managed at faculty level and then forwarded to the university management. First, the faculty prepares and submits the annual work plan and budget for each programme and unit for the new academic year. Subsequently, the work plan and budget are presented, discussed and decided upon at the central management level during the Annual Work Meeting. In view of the data and explanations provided by the university, the experts are convinced that there is secure funding and reliable financial planning for the three programmes for the coming accreditation period.

During the on-site visit, the expert group visits various classrooms, laboratories and other facilities such as the university library. They learn that Alma Ata has several lecture and seminar rooms equipped with multimedia, which can accommodate from 15 to 120 students. In the Mathematics Education programme, students and teachers have furthermore access to different laboratories such as Computer Laboratory, Microteaching Laboratory, the Learning Media Laboratory, and Language Laboratory. For the Informatics and Information System programmes, the available laboratories include the Database and Programming Laboratories, Multimedia Laboratories, and Language Laboratories.

The computer laboratory provides computers equipped with various software including IBM Statistics, Geogebra, Latex, Program R, macromedia flash, filmora. The microteaching laboratory is equipped with complete and adequate infrastructure. The microteaching laboratory consists of two rooms, which are the microteaching room and the control room. These two rooms include speakers, microphones, CCTV camera, projector, a screen projector, monitors, and DVRs. The Database and Programming Laboratory contains applications

such as XAMPP, Visual Studio Code, and Python. The equipment in the Multimedia Laboratory includes different software such as IBM Statistics, Unity 3D, Unity Hub, Filmora, Adobe Photoshop CS5, Adobe Premiere CS5, and Adobe After Effect CS5.

In addition, all students in Alma Ata have access to the library, which houses approximately 9666 books and journals and provides study space. In addition, the library provides access to various digital databases and electronic journals of national and international scope.

In the audit, both students and teachers report that they are satisfied with the facilities and equipment in Alma Ata, noting that all the necessary tools and software are available. The experts agree with the members of Alma Ata: They find that the University is remarkably well equipped and has a variety of facilities for students. They conclude that the infrastructure is well maintained and adequate to run the three programmes under review and to achieve the respective programme objectives.

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

As the timeframe does not allow the university to provide a comment on the report, the experts' assessment as shown above remains unchanged.

Criterion fulfilled.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Self-Assessment Report
- Module descriptions
- Websites of all study programmes

Preliminary assessment and analysis of the experts:

Having examined the module descriptions of all three programmes, the experts confirm that the module descriptions contain information on all the required categories (course name, course code, total student workload, ECTS points awarded, grading scale, intended learning outcomes, content, recommended reading, possible prerequisites, examination methods and assessment criteria). However, as mentioned above, in most cases the information given in the module descriptions does not correspond to reality. Therefore, the descriptions of content, assessment methods and recommended reading need to be revised

in order to reflect the actual study conditions in a transparent way. Furthermore, the module descriptions of the internships and the thesis need to be more detailed and precise, reflecting the exact content and procedure of the respective module. The information on workload must include figures on student's self-study time (in contrast to contact time) and the correct conversion to ECTS. In addition, the module descriptions lack information on the calculation of grades, i.e. the weighting of the different assessment components within a module. Finally, the module descriptions must clearly distinguish between the different categories of modules (university, faculty, compulsory programme modules, elective programme modules).

The students confirm during the discussions that information about the courses are always available online and that details concerning examinations and contents are provided at the beginning of each course by the teaching staff.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Exemplary diploma certificate per study programme
- Exemplary diploma supplement per study programme
- Exemplary transcript of records per study programme

Preliminary assessment and analysis of the experts:
The experts confirm that students of the three programmes receive a Diploma/Certificate, a Diploma Supplement and a Transcript of Records on graduation. However, the experts note that the Transcripts of Records do not include information on the ECTS points awarded for each module. In addition, they remark that the Diploma Supplement lacks some essential information, such as the graduate's final grade and statistical data, as defined in the ECTS Users' Guide, which allow the reader to assess the individual grade. The statistical data provide an insight into the performance of other graduates in the same cohort, so that external parties can assess and compare the graduate's final grade. In conclusion, the experts require Universitas Alma Ata to provide a revised and accurate Transcript of Records and Diploma Supplements for each programme.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report
- All relevant regulations as published on the university’s webpage

- Audit Discussions

Preliminary assessment and analysis of the experts:
The auditors confirm that the rights and obligations of both Universitas Alma Ata and the students are clearly defined and binding. All rules and regulations are published on the university's website and students receive course materials at the beginning of each semester. In addition, all relevant information about the programmes is available on the programme homepages

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

As the timeframe does not allow the university to provide a comment on the report, the experts' assessment as shown above remains unchanged.

Criterion partly fulfilled.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Decrees and manuals on Quality Assurance
- Samples of surveys for students, teachers and industry partners
- Reports of the survey results
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The experts discuss the quality management system in Alma Ata with the Rectorate, programme coordinators and students. They learn that the Quality Assurance Office (QAO) is the central quality assurance unit responsible for managing, monitoring, evaluating and improving the quality of programmes. There is also a Quality Assurance Unit at Faculty and Programme level. The continuous process of improving the quality of programmes is carried out through internal and external evaluation. The external evaluation is carried out by accreditation agencies and takes place every five years.

The internal quality assurance process begins with regular surveys. At the end of each semester, students are asked to participate in the Student Satisfaction Survey, which covers their entire student experience, including teaching.

The results of the satisfaction survey are reported to the relevant units at the end of the completion period. Lecturers have direct access to the results of the student satisfaction survey through their individual portals, while the Head of Programme receives a comprehensive report on the overall results within his or her programme. The development of a follow-up plan is undertaken jointly by the programme and the teaching staff, under the guidance of the Quality Assurance Office, the Centre for Curriculum Development, Relevance and Educational Evaluation and the Directorate of Human Resources. The results of these surveys serve as a basis for revising the curriculum, improving teaching methods, enhancing the academic competence of the teaching staff, and upgrading learning facilities and infrastructure. Follow-up actions are re-evaluated in subsequent evaluation periods. If there is no improvement in the satisfaction index, the Head of Programme, in collaboration with the Directorate of Human Resources, will provide additional support.

In addition to student satisfaction surveys, the University regularly surveys its alumni and industry partners on their impressions of the programmes and recommendations for further improvement, and uses their feedback in programme review.

Each programme quality assurance unit is responsible for tracking the performance of its students and staff. This data is then converted into a Performance Achievement Report, which is submitted to the QAO together with the data generated. The QAO then assigns two internal auditors to each programme to ensure that the self-evaluation report is consistent with the implementation of activities. The results of the internal audit are then discussed in a management review meeting to plan follow-up action on any issues identified. The follow-up and results are then re-evaluated by the Internal Auditor in the following year. The review of the overall programme takes place on a cycle of four to five years.

Students confirm in the audit that surveys are carried out regularly and that they can give feedback directly in class. However, the experts learn that the results of the surveys are not communicated to all students. Instead, a meeting is held once a semester between programme coordinators and selected students, where students and staff can discuss potential areas for improvement. However, Alma Ata must ensure that all students are informed of the anonymous results of the student surveys. Nevertheless, students report that all staff are open to feedback and that suggestions are usually adopted by the programme coordinators.

The expert group confirms that the quality management system in Alma Ata is inclusive of all stakeholders and capable of identifying weaknesses and continuously improving the programmes. However, they recommend that the cohort statistics be revised and clarified as, as mentioned above, the data itself does not give a conclusive picture of the actual study duration of students in the three programmes.

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

As the timeframe does not allow the university to provide a comment on the report, the experts' assessment as shown above remains unchanged.

Criterion partly fulfilled.

D Additional Documents

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

- Statistics on student exchange
- Drop-out rate in each programme

E Comment of the Higher Education Institution

The university does not provide a statement.

F Summary: Expert recommendations (15.11.2024)

Taking into account the additional information, the peers summarize their analysis and **final assessment** for the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Information System	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030
Ba Informatics	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030
Ba Mathematics Education	With requirements for one year	30.09.2030	/	/

Requirements

For all programmes

A 1. (ASIIN 1.3) Ensure that the practical elements are structured in such a way that they build on each other coherently and allow students to reflect on their practical learning experiences with teachers and academic supervisors.

A 2. (ASIIN 1.5) Establish a systematic monitoring of the students' actual workload and verify if the credits awarded are in line with the actual workload. In addition, ensure a correct conversion rate from SKS to ECTS.

A 3. (ASIIN 1.5) Ensure that the credits awarded to the final thesis and internships are in line with the actual workload.

A 4. (ASIIN 2) Establish official regulations on the compensation mechanisms for students with special needs.

A 5. (ASIIN 4.1) Rewrite the module descriptions so that they contain correct and precise information on the content, the assessment methods and the grade calculation, the recommended literature, the self-study time of students, the correct ECTS credit points, and the structure of internships and the thesis. Ensure that there is a clear

distinction between the different categories of modules, particularly between compulsory and elective modules.

A 6. (ASIIN 4.2) Ensure that the Diploma Supplement is in line with the ASIIN criteria and that the Transcript of Records includes information on the ECTS credits awarded.

A 7. (ASIIN 5) Ensure that students are informed about the survey results.

For Ba Informatics and Ba Information Systems

A 8. (ASIIN 1.3) Ensure that there is a clear distinction between the different modules offered in the Informatics and Information Systems programmes.

Recommendations

For all programmes

E 1. (ASIIN 3.1) It is recommended that cooperation with higher education institutions abroad be strengthened.

E 2. (ASIIN 3.1) It is recommended that the teaching workload of PhD teachers be reduced.

E 3. (ASIIN 3.1) It is recommended that teachers be given more opportunities to improve their English or other foreign language skills.

E 4. (ASIIN 5) It is recommended that the cohort statistics be revised and clarified.

For Ba Informatics and Ba Information Systems

E 5. (ASIIN 1.3) It is recommended that the synergies between the programmes be increased by offering identical modules to students of both programmes.

E 6. (ASIIN 1.3) It is recommended that cooperation with industry be strengthened in order to offer students more internships and thesis positions, and to foster teachers' research projects.

For Ba Mathematics Education

E 7. (ASIIN 1.3) It is recommended to increase the content of applied mathematics and to reduce the number of subject-related modules.

E 8. (ASIIN 1.3) It is recommended to extend the duration of school internships.

G Comment of the Technical Committees

Technical Committee 04 – Informatics/Computer Science (21.11.2024)

Assessment and analysis for the award of the ASIIN seal:

Mr. Sesztak reports on the procedure. The TC discusses the procedure and proposes a minor editorial change to recommendation E2 to clarify that it refers to teachers who are in the process of obtaining their PhD and not to teachers who already hold a PhD title. Otherwise, the TC follows the assessment of the experts 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 System	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030
Ba Informatics	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030

Technical Committee 12 – Mathematics (21.11.2024)

Assessment and analysis for the award of the ASIIN seal:

Ms Mothes briefly summarises the procedure for the FA. The members primarily discuss A 3 and A 4. Furthermore, the members discuss the length of the internships (E 8). The Technical Committee unanimously agrees with the assessment of the experts.

The Technical Committee 12 – Mathematics recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Mathematics Education	With requirements for one year	30.09.2030	/	/

H Decision of the Accreditation Commission (06.12.2024)

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

The commission discusses the accreditation procedure and follows the vote of the experts and the suggestions of TC 04. In addition, they propose to modify the wording of requirement A8 to emphasise that the distinction between the module categories should be made in the module descriptions/handbooks.

However, the commission members note some wording in the programme's learning outcomes that gives the impression that students are obliged to devote themselves to the Islamic faith. While it is common in Indonesian learning outcomes to include a reference to religious values, the Commission members note that these formulations seem to require only a strong commitment to the Islamic faith, and do not offer the possibility of other faiths. As the report does not provide any further clarification or explanation in this regard, they ask for a further statement from the university clarifying whether students who are not Muslim receive the same opportunities and treatment. For example, they would like to know whether all students, regardless of their faith, have to take the modules on the Islamic religion, or whether they are given alternative opportunities to gain the credits. Overall, the members of the Commission wish to ensure that students of all faiths are treated with respect and equality and are not discriminated against in any way. The Commission therefore decides to postpone a final decision on the accreditation process until the next meeting, when hopefully new information will be available.

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 Information System	postponed	30.09.2030	Euro-Inf®	30.09.2030
Ba Informatics	postponed	30.09.2030	Euro-Inf®	30.09.2030
Ba Mathematics Education	postponed	30.09.2030	/	/

A Decision of the Accreditation Commission (25.03.2025)

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

The commission discusses the procedure and welcomes Universitas Alma Ata's paper on Equality and Inclusion, which illustrates an overall inclusive and fair treatment of all students. They accept the accreditation with the suggestions made in the previous commission meeting.

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 Information System	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030
Ba Informatics	With requirements for one year	30.09.2030	Euro-Inf®	30.09.2030
Ba Mathematics Education	With requirements for one year	30.09.2030	/	/

Requirements

For all programmes

A 1. (ASIIN 1.3) Ensure that the practical elements are structured in such a way that they build on each other coherently and allow students to reflect on their practical learning experiences with teachers and academic supervisors.

A 2. (ASIIN 1.5) Establish a systematic monitoring of the students' actual workload and verify if the credits awarded are in line with the actual workload. In addition, ensure a correct conversion rate from SKS to ECTS.

A 3. (ASIIN 1.5) Ensure that the credits awarded to the final thesis and internships are in line with the actual workload.

A 4. (ASIIN 2) Establish official regulations on the compensation mechanisms for students with special needs.

A 5. (ASIIN 4.1) Rewrite the module descriptions so that they contain correct and precise information on the content, the assessment methods and the grade calculation, the recommended literature, the self-study time of students, the correct ECTS credit points, and the structure of internships and the thesis. Ensure that there is a clear distinction between the different categories of modules, particularly between compulsory and elective modules.

A 6. (ASIIN 4.2) Ensure that the Diploma Supplement is in line with the ASIIN criteria and that the Transcript of Records includes information on the ECTS credits awarded.

A 7. (ASIIN 5) Ensure that students are informed about the survey results.

For Ba Informatics and Ba Information Systems

A 8. (ASIIN 1.3) The module descriptions need to make the distinction between the different modules offered in the Informatics and Information Systems programmes transparent.

Recommendations

For all programmes

E 1. (ASIIN 3.1) It is recommended that cooperation with higher education institutions abroad be strengthened.

E 2. (ASIIN 3.1) It is recommended that the teaching workload of teachers who are in the process of obtaining their PhD title be reduced.

E 3. (ASIIN 3.1) It is recommended that teachers be given more opportunities to improve their English or other foreign language skills.

E 4. (ASIIN 5) It is recommended that the cohort statistics be revised and clarified.

For Ba Informatics and Ba Information Systems

E 5. (ASIIN 1.3) It is recommended that the synergies between the programmes be increased by offering identical modules to students of both programmes.

E 6. (ASIIN 1.3) It is recommended that cooperation with industry be strengthened in order to offer students more internships and thesis positions, and to foster teachers' research projects.

For Ba Mathematics Education

E 7. (ASIIN 1.3) It is recommended to increase the content of applied mathematics and to reduce the number of non-subject-related modules.

E 8. (ASIIN 1.3) It is recommended to extend the duration of school internships.

Appendix: Programme Learning Outcomes and Curricula

According to Curriculum Guidebook, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Informatics:

No	CPL Codes	CPL Description
1	CPL01	Pious to God Almighty, law compliance, and disciplined in social and state life.
2	CPL02	Demonstrate professional attitudes in the form of Institution/University, adherence to professional ethics, ability to collaborate in multidisciplinary teams, understanding of lifelong learning, and responsiveness to social issues and technological developments
3	CPL03	Have adequate knowledge of how computer systems work and able to apply/use various algorithms/methods to solve problems in an organisation.
4	CPL04	Have the competence to analyse complex computing problems to identify solutions for managing technology projects in the field of informatics/computer science by considering insights of the development of transdisciplinary science.
5	CPL05	Mastering the theoretical concepts of Computer Science / Informatics knowledge in designing and simulating multi-platform technology applications that are relevant to the needs of industry and society.

6	CPL06	Possess team management and teamwork skills, self-management, good oral and written communication skills, and presentation skills
7	CPL07	Compile a scientific description of the results of the study of the implications of the development or implementation of science and technology in the form of a thesis or report final project or scientific article.
8	CPL08	Ability to implement computing needs by considering various appropriate methods/algorithms.
9	CPL09	Ability to analyse, design, and evaluate user interfaces and interactive applications by considering the needs of users and the development of transdisciplinary science.
10	CPL10	Ability to design, implement, and evaluate multi-platform computing-based solutions that fulfil the needs computing in an organisation.
11	CPL11	Able to identify problems and formulate computational solutions for problems in the health and medical fields.
12	CPL12	Implementing the values of Islamic teachings called *rahmatan lil'alamiin.*

The following **curriculum** is presented:

Semester	Code	Course Name	Credit / SKS	Workload Hours	ECTS
1st Semester	FKOM002	Interpersonal Communication	2	79,4	3,14
	INF003	Introduction to Medical and Health Informatics	2	79,4	3,14
	INF005	Algorithms and Programming	3	119,1	4,71
	INF006	Kalkulus	2	79,4	3,14
	INF009	Computer Architecture and Organization	3	119,1	4,71
	INF015	Linear Algebra and Matrices	2	79,4	3,14
	INF062	Computer logic,	3	119,1	4,71
	INF063	Human and Computer Interaction	3	119,1	4,71
2nd Semester	FKOM005	Statistics and Probability	2	79,4	3,14
	INF001	Data Structure	3	119,1	4,71
	INF007	Discrete mathematics	2	79,4	3,14
	INF008	Basic Database	3	119,1	4,71
	INF010	Health Information System	2	79,4	3,14
	INF011	Algorithm Analysis	2	79,4	3,14
	UAA001	Islamic Studies 1	2	79,4	3,14
	UAA004	Indonesian Language Course	2	79,4	3,14
	UAA007	English Language Course	2	79,4	3,14
3rd Semester	FKOM007	English Language Course 2	2	79,4	3,14
	INF013	Basic Web Programming	3	119,1	4,71
	INF014	Structured System Analysis and Design	2	79,4	3,14
	INF016	Database Management System	3	119,1	4,71
	INF017	Hospital Information System	2	79,4	3,14
	INF018	Numerical Analysis	2	79,4	3,14
	INF024	Computer Network	3	119,1	4,71
	INF061	Artificial Intelligence	3	119,1	4,71
	UAA002	Islamic Studies 2	2	79,4	3,14
4th Semester	FKOM001	Software Engineering	3	119,1	4,71
	FKOM006	Web Programming	3	119,1	4,71
	FKOM008	Operating sistem Course	3	119,1	4,71
	INF020	Object-Oriented Programming	3	119,1	4,71
	INF038	Interface Design and User Experience	3	119,1	4,71
	INF045	Data Visualization	3	119,1	4,71
	INF049	Deep Learning	3	119,1	4,71

Semester	Code	Course Name	Credit / SKS	Workload Hours	ECTS
	INF050	Formal Methods in Software Engineering	3	119,1	4,71
	INF051	Digital Forensics	3	119,1	4,71
	INF052	Cloud Computing	3	119,1	4,71
	INF064	Automata Language Theory	3	119,1	4,71
	UAA003	ISLAMIC RELIGIOUS STUDIES III	2	79,4	3,14
5rd Semester	INF021	Decision Support System	2	79,4	3,14
	INF023	Device Technology	3	119,1	4,71
	INF027	Research Methodology	3	119,1	4,71
	INF029	Project Management	3	119,1	4,71
	INF036	Software Quality Test	3	119,1	4,71
	INF053	Software Analysis and Design	3	119,1	4,71
	INF054	AR/VR technology	3	119,1	4,71
	INF055	Interactive Media System	3	119,1	4,71
	INF056	E-Health	3	119,1	4,71
	INF057	Web Semantic	3	119,1	4,71
6rd Semester	FKOM010	Community Service Program	3	119,1	4,71
	FKOM012	Professional Ethics	3	119,1	4,71
	INF028	Data Mining	3	119,1	4,71
	INF043	Big Data	3	119,1	4,71
	INF044	Image Processing	3	119,1	4,71
	INF046	Expert System	3	119,1	4,71
	INF047	Natural Language Processing	3	119,1	4,71
	INF048	Internet of Things	3	119,1	4,71
	INF058	Game Development	3	119,1	4,71
	INF059	Social Network Analysis	3	119,1	4,71
	UAA006	Pancasila	2	79,4	3,14
7rd Semester	FKOM011	Internship	3	119,1	4,71
	UAA005	Citizenship Education	2	79,4	3,14
	UAA008	Entrepreneurship	2	79,4	3,14
8rd Semester	INF034	Capita Selecta	3	119,1	4,71
	INF035	Thesis	6	238,2	9,42

According to Curriculum Guidebook, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Information System:

No	CPL code	Description	Reference	CPL SN-DIKTI
1	CPL01	Able to understand, analyze and assess basics concepts and role of information systems in managing data and providing decision-making recommendations on organisational processes and systems.	SN DIKTI Number 49 of 2023 IS2020 A3.1 Foundations Competency Realm IS2020 A3.2 Data / Information Competency Realm IS2020 A3.4.2 Competency Area - Application Development and Programming IS2020. A3.5.1 IS Ethics, Sustainability, Users and Implications	CPL-KU01
2	CPL02	Able to design and use databases, as well as process and analyze data with data processing tools and techniques.	IS2020 3.2.1 Data/Information Management IS2020 A3.5.2 Competency Area – IS Management and Strategy IS2020 A3.6.1 Competency Area - IS Project Management	
3	CPL03	Able to understand and utilize various system development methodologies along with system modelling tools and analyse user needs in building	SN DIKTI Number 49 of 2023 Information System of Alma Ata University	CPL-KU03 CPL-KU05

		information systems to achieve organisational goals.	IS2020 A.3.4.1 Competency Area - System Analysis and Design IS2020 A3.6.2 Competency Area – IS Practicum SKKNI Programming, Application Developer SKKNI Software Requirements Analysis and Design, Systems Analyst	
4	CPL04	Able to plan IT infrastructure, designing network architecture, physical and cloud-based services, and evaluating the concepts related to identification, authentication, access authorisation in the context of protecting individuals and devices.	IS2020 A3.3 Technology Competency Realm SKKNI Enterprise Architecture Design Information System of Alma Ata University	
5	CPL05	Able to comprehend and adhere to ethical coding practices when working with information and data in the design, implementation, and utilization of systems.	SN DIKTI Number 49 of 2023 APTIKOM/IABEE, 1.3.c Alma Atta University IS2020 A3.5.2 Competency Area – IS Management and Strategy IS2020 A3.5.1 Competency Area - IS Ethics Sustainability, Use, and Implications for Society	CPL-KU02 CPL-KU04 CPL-KU06 CPL-KU07
6	CPL06	Have the ability to plan, implement, maintain and improve organisational information systems to achieve strategic organisational goals and objectives both in the short and long term.	SN DIKTI Number 49 of 2023 Information System of Alma Ata University Administration System of SKKNI, Sys Admin / Computer Support SKKNI Security Information, Security Executive / Information Security IS2020 A3.5.2 Competency Area - IS Management and Strategy	CPL-KU08
7	CPL07	Able to understand, identify and apply concepts, techniques and methodologies of information systems project management.	SN DIKTI Number 49 of 2023 SKKNI ICT Project Manager, Business Analyst / Project Manager SKKNI System Planning Company Resources SKKNI Data Center Management, Data Administrator	CPL-KU09

8	CPL08	Able to analyze, design and evaluate business processes for business sustainability in accordance with the development of the era.	SN DIKTI Number 49 of 2023 Information System of Alma Ata University SKKNI for Information Technology Auditors, System Architect / IT Auditor APTIKOM Specific Program Achievements Point 8 ASIIN SSC-07 Business Informatics / Information Systems	
9	CPL09	Capable of manifesting a devoted attitude towards God Almighty in alignment with the principles of Islamic teachings, characterized by "*Rohmatan lil'alamin*" (embracing *Pancasila*, guided by the law of love for others, promoting tolerance, and avoiding radicalism). Additionally, demonstrating an entrepreneurial spirit, independence, and leadership grounded in norms, values, and ethics, along with a commitment to professionalism and responsibility.	SN DIKTI Number 49 of 2023 Alma Atta University	CPL-S01 CPL-S02 CPL-S03 CPL-S04 CPL-S05 CPL-S06 CPL-S07 CPL-S08 CPL-S09 CPL-S10

The following **curriculum** is presented:

Semester	Code	Course Name	Credit / SKS	Workload Hours	ECTS
1st Semester	SI050	Discrete Structure	3	119,1	4,71
	SI051	Introduction to Information Systems	2	79,4	3,14
	SI052	Basic Accounting	2	79,4	3,14
	SI053	Organization and Management	2	79,4	3,14
	SI054	Programming Algorithms	3	119,1	4,71
	SI055	Digital Transformation	2	79,4	3,14
	FKOM002	Interpersonal Communication	2	79,4	3,14
	UAA001	Islamic Religious Studies 1	2	79,4	3,14
	UAA004	Indonesian	2	79,4	3,14
2nd Semester	SI056	Archive System and File Access	3	119,1	4,71
	SI057	Scientific Writing	2	79,4	3,14
	SI060	Computer Networks and Data Communications	3	119,1	4,71
	SI067	Computer Organization	3	119,1	4,71
	FKOM004	Database	3	119,1	4,71
	UAA002.02	Islamic Religious Studies 2	2	79,4	3,14
	UAA005.01	Civic education	2	79,4	3,14
	UAA007.01	English 1	2	79,4	3,14
3rd Semester	SI058	Human and Computer Interaction	3	119,1	4,71
	SI059	Cyber Security	3	119,1	4,71
	SI061	Business Process Analysis	3	119,1	4,71
	SI062	Information Systems Theory	3	119,1	4,71
	SI063	Statistics and Probability	3	119,1	4,71
	FKOM005	Statistics and Probability	2	79,4	3,14
	FKOM003	Data Structures	3	119,1	4,71
	FKOM007	English 2	2	79,4	3,14
4th Semester	SI064	Supply Chain Management	3	119,1	4,71
	SI065	Risk Management and Business Sustainability	3	119,1	4,71
	SI066	System Strategic Planning	2	79,4	3,14
	SI068	Digital Innovation	3	119,1	4,71
	FKOM006	Web Programming	3	119,1	4,71
	FKOM001	Software engineering	3	119,1	4,71
	FKOM008	Operating System	3	119,1	4,71

Semester	Code	Course Name	Credit / SKS	Workload Hours	ECTS
	UAA003	Islamic Religious Studies 3	2	79,4	3,14
5rd Semester	SI069	System Implementation and Testing	2	79,4	3,14
	SI070	Enterprise Architecture	3	119,1	4,71
	SI071	Research methodology	2	79,4	3,14
	SI072	Business Models and Strategies	2	79,4	3,14
	SI073	Organizational Behavior	2	79,4	3,14
	SI074	Data Mining	3	119,1	4,71
	SI094	Enterprise Resource Planning	3	119,1	4,71
	FKOM009	Mobile Programming	3	119,1	4,71
	UAA006.01	Pancasila (Five Principles)	2	79,4	3,14
6rd Semester	SI084	Statistics for Business	3	119,1	4,71
	SI077	Change Management	3	119,1	4,71
	SI078	Digital Business	3	119,1	4,71
	SI079	Decision Support Systems	3	119,1	4,71
	SI080	Integration System	3	119,1	4,71
	FKOM010	Community Service Program	3	119,1	4,71
	UAA008.01	Entrepreneurship	2	79,4	3,14
7rd Semester	SI085	Customer Relationship Management	3	119,1	4,71
	SI086	Capita Selecta	3	119,1	4,71
	SI087	Business Communication	3	119,1	4,71
	FKOM011	Job training	3	119,1	4,71
	FKOM012	Professional Ethics	3	119,1	4,71
8rd Semester	SI089	Thesis	6	238,2	9,42

According to Curriculum Guidebook, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Mathematics Education:

No.	CPL Code	CPL description	Reference	CPL SN- DIKTI
1	CPL01	Students are able to show devotion to God Almighty and love for the country and appreciate cultural diversity (S1)	KKNI & IndoMS	CPL SN-DIKTI 01, 02, 03, 04, 05, 06, 07, 10, & 11
2	CPL02	Students are able to internalise academic norms and ethics (S2)	KKNI & IndoMS	CPL SN-DIKTI 02, 03, 04, 05, 06, 07, 08, & 09
3	CPL03	Students are able to analyse the theoretical concepts of mathematics that support mathematics learning in primary and secondary education and for further studies (P1)	KKNI & IndoMS	CPL SN-DIKTI 33 & 34
4	CPL04	Students are able to analyse educational theories, as well as research methodology and curriculum in the field of mathematics education (P2)	KKNI & IndoMS	CPL SN-DIKTI 35, 36, 37, 38, 39, 40, 41, 42, 43
5	CPL05	Students are able to implement pedagogic-didactic concepts in the field of mathematics (KK1)	KKNI & IndoMS	CPL SN-DIKTI 21, 22, & 23
6	CPL06	Students are able to develop ICT-based mathematics learning innovations (KK2)	KKNI & IndoMS	CPL SN-DIKTI 21, 22, & 23
7	CPL07	Students are able to conduct research in the field of mathematics education (KK3)	KKNI & IndoMS	CPL SN-DIKTI 24, 25, & 27

No.	CPL Code	CPL description	Reference	CPL SN- DIKTI
8	CPL08	Students are able to design entrepreneurial activities in the field of mathematics and mathematics education (KK4)	KKNI & IndoMS	CPL SN-DIKTI 27
9	CPL09	Students are able to demonstrate communication skills, collaboration, and critical and creative thinking skills. (KU1)	KKNI & IndoMS	CPL SN-DIKTI 11, 12, 13, 14, 15, 16, 17, 18, 19, 20

The following **curriculum** is presented:

Semester	Course Code	Course Title	Credit (SKS)	Workload Hours	ECTS
1	PM089	Socio-anthropology of Education	2	79,4	3,14
	PM090	Logic and Sets	3	119,1	4,71
	PM091	Algebra and Trigonometry	3	119,1	4,71
	UAA001.02	Indonesian Language	2	79,4	3,14
	UAA005.02	Civic Education	2	79,4	3,14
	UAA006.02	Pancasila	2	79,4	3,14
	UAA007.02	English 1	2	79,4	3,14
	UAA001.02	Islamic Studies 1	2	79,4	3,14
	PM092	Plane geometry	2	79,4	3,14
		Sum	**20**		**31,4**
2	FITK002	Education Science	2	79,4	3,14
	FITK003	English II	2	79,4	3,14
	PM093	Number Theory	2	79,4	3,14
	PM094	Theory of Chance (probability theory)	3	119,1	4,71
	PM095	Differential Calculus	3	119,1	4,71
	FITK004	Educational Psychology	2	79,4	3,14
	UAA002.02	Islamic Religious Studies II	2	79,4	3,14
	FITK008	Educational Statistics	3	119,1	4,71
		Sum	**19**		**29,83**
3	PM097	English Math	2	79,4	3,14
	PM096	Psychology of Learning Mathematics	2	79,4	3,14
	PM098	Integral Calculus	3	119,1	4,71
	PM099	Linear Algebra	3	119,1	4,71
	PM100	Space Geometry	3	119,1	4,71
	PM101	Capita Selecta Mathematics I	3	119,1	4,71
	PM102	Mathematical Computer Applications	3	119,1	4,71
	PM103	Computer Programming	2	79,4	3,14
	UAA003	Islamic Religious Studies III	2	79,4	3,14
		Sum	**23**		**36,11**
4	PM104	Advanced Calculus	3	119,1	4,71
	PM105	Analytic Geometry	3	119,1	4,71
	PM106	Advanced Statistics	3	119,1	4,71
	PM107	Capita Selecta Mathematics II	3	119,1	4,71
	PM108	Abstract Algebra	3	119,1	4,71
	PM109	Mathematics Learning Methodology	2	79,4	3,14
	PM110	Curriculum Review	2	79,4	3,14
	PM111	Mathematics Learning Media Development	2	79,4	3,14

		Sum	**21**		**32,97**
5	PM112	Differential Equations	3	119,1	4,71
	PM113	Linear Programming	3	119,1	4,71
	PM114	Transformation Geometry	2	79,4	3,14
	PM115	Mathematical Statistics	2	79,4	3,14
	PM116	Mathematics Learning Planning	3	119,1	4,71
	PM117	Evaluation of Mathematics Learning Outcomes	3	119,1	4,71
	FITK007	Educational Research Methodology	2	79,4	3,14
	PM118	ICT Integration in Mathematics Learning	3	119,1	4,71
	PM119	History of Mathematics	2	79,4	3,14
		Sum	**23**		**36,11**
6	FITK006	Micro Teaching	2	79,4	3,14
	FITK009	Field Experience Practice (PPL)	4	158,8	6,28
	PM120	Internship I	1	39,7	1,57
	PM121	Internship II	1	39,7	1,57
	FITK001	Education Management	2	79,4	3,14
	FITK005	Teacher Training Profession	2	79,4	3,14
	PM122	Advanced Education Research Methodology	2	79,4	3,14
		Elective Course*	2	79,4	3,14
		Elective Course*	3	119,1	4,71
		Sum	**19**		**29,83**
7	FITK010	Community Service Program (KKN)	4	158,8	6,28
	PM129	Computer Multimedia	2	79,4	3,14
	UAA008.02	Entrepreneurship	2	79,4	3,14
		Elective Course*	2	79,4	3,14
		Elective Course*	3	119,1	4,71
		Sum	**13**		**20,41**
8	FITK011	Thesis	6	238,2	9,42
		Sum	**6**		**9,42**