ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes

Biology Education

Geography Education

Informatics and Computer Engineering Education

Provided by

Universitas Negeri Makassar, Indonesia

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]
Sarjana Pendidikan (S.Pd.) Biologi	Bachelor of Education (B.Ed.)	ASIIN	BAN-PT Grade Excellent; valid until 2026-02-23	10
Sarjana Pendidikan (S.Pd.) Geografi	Bachelor of Education (B.Ed.)	ASIIN	BAN-PT Grade Excellent; valid until 2028-10-02	11
Sarjana Pendidikan (S.Pd.) Teknik Informasi	Bachelor of Education (B.Ed.)	ASIIN	BAN-PT Grade Excellent; valid until 2029-05-14	04
Date of the contract: 25.10.2023 **Submission of the final version of the Self-Assessment Report:** 17.09.2024 **Date of the audit:** 10.– 11.12.2024 **At:** Universitas Negeri Makassar				
Assessment panel: Prof. Dr. Andreas Schwill, University of Potsdam Prof. Dr. Dirk Krüger, Freie Universität Berlin Prof. Dr. Yelva Larsen, Otto-Friedrich-University Bamberg Prof. Dr. Leni Sophia Heliani, Gadjah Mada University				

[1] ASIIN Seal for degree programmes

[2] TC: Technical Committee for the following subject areas: TC 10 – Life Sciences; TC 11 – Geosciences; TC 04 – Informatics/Computer Science

Mr Wilfridus Handaya, M.Cs, Founder tuwuhwutuh.id and lecturer Ms. Atilla Rizkyara, student at Universitas Negeri Jakarta	
Representative of the ASIIN headquarters: Emeline Jerez, PhD	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2023 Subject-Specific Criteria of the Technical Committee 10 – Life Sciences as of 28 June 2019 Subject-Specific Criteria of the Technical Committee 11 – Geosciences as of 09 December 2011 Subject-Specific-Criteria of the Technical Committee 04 – Informatics/Computer Science as of 29 March 2018	

B Characteristics of the Degree Programme

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
Bachelor's Degree in Biology Education	Sarjana Pendidikan (S.Pd.) / Bachelor of Education (B.Ed)		Level 6	Full time	No	8 semesters	148 credits equivalent to 216 ECTS	Annually First offered in 1997

[3] EQF = The European Qualifications Framework for Lifelong Learning

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF3	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Bachelor's Degree in Geography Education	Sarjana Pendidikan (S.Pd.)/Bachelor of Education (B.Ed.)		Level 6	Full time	No	8 semesters	146 credits equivalent to 220.46 ECTS	Annually First offered in 1997
Bachelor's Degree in Informatics and Computer Engineering Education	Sarjana Pendidikan (S.Pd.)/Bachelor of Education (B.Ed.)		Level 6	Full time	No	8 semesters	146 credits equivalent to 220.46 ECTS	Annually First offered in 2009

The ASIIN experts acknowledged and considered the contextual framework within which the Bachelor's programmes under review are offered:

Universitas Negeri Makassar (UNM) is a public university in Makassar, South Sulawesi, Indonesia. It was established on 1 August 1961.

Originally focused on teacher training, the university has since expanded its academic offerings across various disciplines. UNM has ten faculties and one school for postgraduate studies. The university offers undergraduate, graduate, and doctoral programmes in areas such as education, engineering, social sciences, economics, and arts, with a strong emphasis on research and community service.

UNM's vision is to become "a center for education, research and development of education, science, technology, and arts with an educational and entrepreneurial perspective."

The Faculty of Mathematics and Natural Sciences[4]

Fakultas Matematika Dan Ilmu Pengetahuan Alam (FMIPA) was established in 1965. FMIPA comprises five departments: Mathematics, Physics, Chemistry, Biology, and Geography. Each department offers two study programmes: the Education Study Programme, which

[4] https://fmipa.unm.ac.id/

leads to a Bachelor of Education (S.Pd.), and the Non-Education Study Programme, which awards a Bachelor of Science (S.Si.).

The faculty defines its vision as "FMIPA which excels nationally and is globally competitive in the development of the fields of MIPA and learning and produces alumni who are competent in their fields, literate in information technology and have an entrepreneurial perspective by 2025."

The following mission statement is presented:

1. "Organizing quality and literate MIPA education in information technology.
2. Developing research in the field of Mathematics and Natural Sciences and its learning to support the development of Science and Technology.
3. Organizing community service activities based on the fields of Mathematics and Natural Sciences and their learning.
4. Establishing cooperation in the fields of education, research, and community service nationally and internationally.
5. Providing insight into knowledge and entrepreneurial skills for the FMIPA academic community."

FMIPA pursues ASIIN accreditation for the Biology Education Study Programme (BESP) and Geography Education Study Programme (GESP). According to the Curriculum Documents, the objectives of the programmes are as follows:

i. Biology Education

1. "Producing biology education graduates who are faithful and devoted to God Almighty, qualified and professional and able to act as agents of development reformers in the midst of society.
2. Producing biology education graduates who have a high commitment to achievement, have a high work ethic, never give up, and serve the interests of the nation and state based on Pancasila and the 1945 Constitution.
3. Producing biology education graduates who master technology related to the field of biology learning.
4. Producing biology education graduates who have an entrepreneurial spirit, enabling them to become agents of reform in biology learning and biology-based entrepreneurship development."

ii. Geography Education

1. "Producing graduates who are professional and competent in the field of Geography Education, literate in information technology, and have an entrepreneurial perspective.
2. Producing research and service in the field of geography education that can be used by the community, especially in improving and developing the quality of learning.
3. Applying the results of research and service that can be used by the community.
4. Establish and develop cooperation with various other agencies/institutions in the country and abroad in the fields of education, research, and community service."

The Faculty of Engineering[5]

Fakultas Teknik (FT) traces its origins to the Faculty of Technical Teacher Training (FKT) at IKIP Yogyakarta Makassar Branch, established in 1964. It became the current faculty in 1999. FT consists of eight departments: Civil Engineering, Mechanical Engineering, Electrical Engineering Education, Electronics Engineering Education, Family Welfare Education, Automotive Engineering Education, Informatics and Computer Engineering Education and Agricultural Technology Education.

The vision of FT is to be seen "as a center for education, study, and application of vocational technology in the vocational and engineering fields that are professional with a superior entrepreneurial perspective."

In realizing this vision, the following mission statement is presented:

1. "To provide high-quality education in vocational and engineering technology in alignment with National Education Standards and Minimum Service Standards (SPM), meeting the demands of the global job market.
2. To develop research and studies in the fields of vocational and engineering technology education.
3. To conduct community service activities based on research outcomes in vocational and engineering technology, addressing societal needs.
4. To build synergistic partnerships with higher education institutions in the fields of vocational and engineering technology, both domestically and internationally, as well as with government and private sectors (business and industry, community organizations, professional and industry associations).

[5] https://ft.unm.ac.id/

5. To foster entrepreneurial interest and attitudes among students and alumni through education and training activities in vocational and engineering technology"

FT pursues ASIIN accreditation for the Informatics and Computer Engineering Education Study Programme (ICEESP), which is introduced in the Curriculum Documents with the following objectives:

iii. Informatics and Computer Engineering Education

1. "Producing graduates of experts in the field of computer and informatics and educators in the field of Informatics and Computer Engineering Education who are of high quality in accordance with national education standards in accordance with the latest technological developments.
2. Producing quality research findings and scientific publications in the field of Informatics and Computers.
3. Applying research products to community service activities in the field of computers and informatics that are relevant to community needs.
4. Producing and expanding a network of cooperation that can synergize to support the Tri Dharma of Higher Education.
5. Producing graduates who have an entrepreneurial spirit/technopreneur, especially in IT start-ups through education and training."

During the audit, the representatives from the Rector's Office provided insights into the strategic decision to pursue international accreditation for these three study programmes. They noted that UNM has already achieved the highest level of accreditation in Indonesia, known as "Unggul" or "Excellent." Building on this achievement, UNM is aiming for even more by seeking international accreditation for its programmes in addition to the existing national accreditation. To support this initiative, the Vice-Rector for Collaboration and Planning has allocated a financial budget to ensure that eligible study programmes can obtain international accreditation. The assessment team commends the university for its efforts and resource allocation aimed at enhancing its international profile.

C Accreditation Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

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

Evidence:

- Self-assessment report
- Outcomes-Module-Matrices, as part of the appendices
- Curriculum Document, programmes under review
- BESP website: https://pend-biologi.fmipa.unm.ac.id/
- GESP website: https://pend-geografi.fmipa.unm.ac.id/
- ICEESP website: https://ptik.ft.unm.ac.id
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The expert team refers to the Subject-Specific Criteria (SSC) of the Technical Committees Life Sciences, Geosciences and Informatics/Computer Science, respectively, as a basis for judging whether the intended learning outcomes of the Bachelor's degree programme in Biology Education, Bachelor's degree programme in Geography Education and Bachelor's degree programme in Informatics and Computer Engineering Education, as defined by UNM, correspond with the competences as outlined by the SSC. They come to the following conclusions:

i. Learning Outcomes

At the programme level, the experts observe two tiers of development for the educational objectives of the programmes under review:

- **Programme-specific Objectives (PEOs)**, which establish the programme's goals (profile) based on the university's and faculty's vision and mission statements, and market needs (see section B).
- **Programme Learning Outcomes (PLOs)**, which derive from the study programme objectives and guide the design and assessment of the curriculum (see Appendix).

PLOs are developed based on each programme's educational objectives, a process involving internal (lecturers, administrative staff and students) and external (professional associations, employers and relevant experts) stakeholders. The PLOs align with the Indonesian National Qualification Framework, the National Higher Education Standards, UNM's vision and mission, and the mandates of the Faculty of Mathematics and Natural Sciences and the Faculty of Engineering, respectively.

During the on-site visit, the experts engaged in a discussion with the programme coordinators regarding the PLOs and the underlying idea of competence in the programmes being reviewed. While PLOs are formulated basically clear, plausible, and comprehensible, the experts noted that a clear definition of competence, as well as its connection to related concepts such as problem-solving, critical thinking, problem-based learning, inquiry based learning, among others, is absent from the Curriculum Document.

The programme coordinators indicated that the concept of competence includes four key aspects: Attitude, Knowledge, General Skills, and Special Skills. These are the areas students are expected to develop, following the guidelines outlined in the Indonesian National Qualification Framework.

While the experts acknowledge these four aspects, they emphasize the need for the programmes to include a more comprehensive explanation of the competence concept within the framework of science education. They note that this needs to incorporate relevant references to support the understanding of competence in this context.

Within the documentation, UNM provides an Objectives-Module Matrix for each programme to verify that the intended learning outcomes of the degree programmes are aligned with the respective SSC. In addition, UNM presents tabular linkages between PEOs and LOs, and LOs and the modules in the curriculum.

The experts also confirm that the learning outcomes are published on the programme websites and thus accessible to all interested parties.

Regarding the documents available to the public, the experts sought further clarification from the programme coordinators regarding the stated focus of the programmes. The experts found the information to be unclear, with some documents indicating that the programmes also prepare graduates for primary-level teaching (see graduate profile in the next section). However, the programme coordinators clarified that the focus of all three programmes is on preparing graduates for teaching at the secondary and senior high school levels.

To ensure clarity and avoid any potential misunderstanding for prospective students, and other stakeholders, the experts request that the university revise all publicly available

documents. These have to accurately state that the programmes are designed for teaching education at levels above the primary school level.

Aside from the comments above, the experts are generally satisfied with the formulation of the programmes´ objectives and learning outcomes. Most of the objectives and learning outcomes are well-established, align with the targeted academic qualifications, and ensure professional qualifications at level 6 of the European Qualifications Framework.

ii. Graduate Qualification Profiles

The graduate profile is shaped by analysing societal needs and job market demands. The programmes align with standards from professional associations while also addressing the needs of stakeholders, who are regularly invited to provide input through surveys and focus groups.

Drawing on this stakeholder process, graduates of the Biology Education study programme are expected to embark on the following career paths (Curriculum document, p.16):

1	"Biology Educator Candidate"	"Educator, facilitator of creative, innovative learning that educates with good mastery of biological materials, has the ability to use information technology to keep abreast of developments in biology and learning."
2	"Biology Education Researcher"	"Study and apply the principles of biology/biological education for various entrepreneurial activities as a provision for independent life."
3	"Biology Education Entrepreneurship"	"Study and apply the principles of biology/biological education for various entrepreneurial activities as a provision for independent life."
4	"Biology Education Practitioner"	"Primary and secondary education institution/unit managers as school laboratory managers."

Graduates of the Geography Education study programme are expected to contribute their knowledge and skills as (Curriculum document, p.22):

1	"Geography Teacher/Educator"	As educators, creative, innovative learning facilitators who educate with good mastery of Geography material, have the ability to use information technology to follow the development of Geography and its learning."
2	"Geography Learning Researcher"	"The basis of being a researcher is that teachers always face problems in learning in the classroom and also the demands of the curriculum, authentic assessment strategies, classroom management strategies, learning encourages teachers to create change, namely by conducting research."

3	"Managers of educational institutions or units."	"As part of an educational service group that provides education on formal and non-formal pathways and informal at every level and type of education."
4	"Entrepreneurial"	"Have personal expertise competencies in Creative and independent business field"

Graduates of the Informatics and Computer Engineering Education study programme are anticipated to pursue the following career paths (source: Curriculum document, p.23)

1	"Educators, instructors/trainers and *widyaiswara* in informatics and computer engineering"	"Informatics and computer engineering educators (elementary, junior high, high school/vocational school equivalent) in the field of software engineering, computer networks, multimedia and Network and Application Informatics Systems. In addition, they can also become instructors/trainees in industrial training and/or *widyaiswara* at educational institutions in the field of informatics and computer engineering."
2	"Professionals in the field of ICT"	"Manage networks and/or Visual/multimedia learning designers in companies in the field of informatics and computer engineering (software houses) and production houses that have a technopreneur spirit. In addition, ICT graduates are also expected to become computer laboratory managers in government/private institutions and education."
3	"Entrepreneurship in the field of ICT"	"Technopreneurs and data analysts of companies engaged in ICT."
4	"Researchers and provisions to continue their education at a higher level"	"Researcher in the field of informatics and computer engineering education, and has the readiness to continue studies at the S2/S3 level."

During their exchange with alumni and employers regarding career prospects of the graduates, the experts learned that most graduates are working as teachers. Some become civil servants or work in public institutions, while others pursue entrepreneurship and start their own businesses. A smaller proportion of graduates work in the industry. Some decide to go for research and pursue Master's and PhD studies.

In connection to this, the experts specifically focused on the Informatics and Computer Engineering Education study programme, which sets expectations for careers in the ICT field within companies. Based on insights from stakeholders, however, it became clear that the programme's primary emphasis is on preparing graduates for roles in educational settings.

In light of this discussion and to better align expectations regarding career outcomes, the experts believe that the Informatics and Computer Engineering Education study programme should make clear that graduates are educated to become teachers or have jobs in educational areas.

The experts also recommend that the university establish a distinct pathway for students who aspire to become Computer Scientists, providing them with the specialized knowledge and skills needed for careers in the industry.

From the audit discussions, the experts came to the conclusion that students are generally well-prepared to enter the school system at a high level. The school partners present at the meeting reported that graduates are highly competent and effectively contribute to enhancing the learning process. They believe that graduates are adequately trained to become teachers within the school system.

Likewise, students and alumni were very satisfied with the programmes under review. They reported a positive learning experience and felt optimistic about their future job and academic prospects. In particular, alumni noted that they felt prepared for a career as educators, with examples of some receiving multiple job offers from schools after applying for positions.

The experts gained the overall impression that the imparted qualification profiles meet the expectations from all sides, and allow the students to take up an occupation corresponding to their qualifications upon graduation.

iii. Review of Learning Outcomes

As documented in the self-assessment report, programme objectives, learning outcomes, and curricula undergo a major review every five years to remain aligned with societal and labour market dynamics, governmental regulations, as well as emerging trends. These reviews include consultation with internal and external stakeholders, benchmarking processes, and graduate data through annual tracer studies.

During the audit, the programme coordinators informed the experts that a workshop is held every two years, involving alumni and users. The purpose of these workshops is to ensure the alignment of the PEOs and PLOs with the needs of stakeholders. Additionally, student feedback collected through the EDOM survey is continuously used as a source of input for the ongoing review and improvement process.

When asked about how the university gathers feedback on the competencies of its graduates, both alumni and employers confirmed that various methods are used to collect their insights on the curriculum and its future relevance. These methods include filling out

an annual online form, as well as providing suggestions and recommendations through email and WhatsApp groups.

From the provided documentation, their exchanges during the audit, as well as the further discussion about the University's quality assurance mechanisms under Criterion 1.3 and Criterion 5, the experts gained the impression that recurring review mechanisms concerning the learning outcomes of the programmes under review are in place. **However, the experts propose a revised approach to planning, implementing, and evaluating the curriculum, as further detailed in Criterion 1.3, with a specific emphasis on education. As mentioned in section i., it is essential to have a clear definition of competence and to understand its relationship to related concepts such as problem-solving, critical thinking, problem-based learning, and inquiry-based learning, among others.**

In summary, the assessment team believes that the degree programmes are designed in such a way that they meet the objectives set for them and judge the objectives and learning outcomes of the programmes as suitable to reflect the intended level of academic qualification. They correspond with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committees Life Sciences, Geosciences and Informatics/Computer Science, respectively, and suffice the ASIIN Criteria for the Accreditation of Degree Programmes. Further discussion on the curricula will follow under Criterion 1.3.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-assessment report
- Curriculum Documents, programmes under review
- BESP website: https://pend-biologi.fmipa.unm.ac.id/
- GESP website: https://pend-geografi.fmipa.unm.ac.id/
- ICEESP website: https://ptik.ft.unm.ac.id
- Sample Diploma Certificate, programmes under review

Preliminary assessment and analysis of the experts:

UNM awards a Bachelor of Education (B.Ed.) or Sarjana Pendidikan (S.Pd.) degree to the graduates of the BESP, GESP and ICEESP programmes.

The names of the degree programmes properly reflect the respective focus and content of the undergraduate programmes.

The auditors confirm that the English translation and the original Indonesian names of all three Bachelor's degree programmes correspond with the intended aims and learning

outcomes as well as the main course language (Indonesian). It is also worth noting that both the BESP and GESP programmes offer an international class, where English is used as the mandatory language of instruction.

Criterion 1.3 Curriculum

Evidence:

- Self-assessment report
- Curriculum Documents, programmes under review
- University website: https://unm.ac.id/
- BESP website: https://pend-biologi.fmipa.unm.ac.id/
- GESP website: https://pend-geografi.fmipa.unm.ac.id/
- ICEESP website: https://ptik.ft.unm.ac.id
- UNM Academic Calendar 2024/2025: https://unm.ac.id/kalender-akademik/
- Discussions during the audit

Preliminary assessment and analysis of the experts:

i. Structure of the Programmes

Each semester is equivalent to 14 weeks of learning activities. Besides these learning activities, there is one week for midterm exams and one week for final exams. Mid and final exams are conducted on Week 8th and Week 16th, respectively. The odd semester starts in August and ends in January of the following year, while the even semester lasts from February to July. In addition, there is an optional summer semester, which is designed for students, who need to make up for missed or failed courses.

For the study programmes, the minimum study load is 144 Indonesian Credits (SKS/CSU), respectively, with an expected duration of 8 semesters.

The curricula consist of modules in the categories of compulsory and elective courses and a Bachelor's thesis. The study load per category and programme is as follows:

Table 1: Curriculum structure
Source: Self-assessment report, UNM.

Category	BESP	GESP	ICEESP
Compulsory modules	120	120	128
Elective modules	18	18	10
Thesis	6	6	6
Total CSU	**144**	**144**	**144**

The curriculum integrates the Independent Leaning-Independent Campus (*Merdeka Belajar - Kampus Merdeka*, *MBKM*) programme, allowing students the opportunity to

choose learning experiences outside the campus. As per the regulation, students can opt for 20 credit units of study outside their programme.

ii. Contents

Biology Education study programme

The seven content areas in the programme are:

- **M1. General and Personality Knowledge**: These are university compulsory courses that need to be attended by all undergraduate students at UNM. Includes courses such as Pancasila, Civic Education, Religion, and Indonesian Language (8 CSU)
- **M2. Basic Science**: Basic compulsory courses on the different natural sciences and mathematics are offered in the first two semesters (16 CSU).
- **M3. General Pedagogical Knowledge**: This group of compulsory courses is designed to provide an understanding of the basic concepts of education, pedagogics, philosophy, and learning psychology (10 CSU).
- **M4. Content Pedagogical Knowledge**: These compulsory courses focus on biology-specific content that is related to teaching and learning strategies (21 CSU).
- **M5. Content Knowledge**: In this area, practical and theoretical mandatory courses on the main biology subjects (plant morphology; animal structure; biochemistry; invertebrate zoology; plant anatomy and more) are offered (58 CSU).
- **M6. Other field expertise (multi and interdisciplinary):** This area includes mandatory supporting courses in biology, pedagogy, community service, and the Bachelor's thesis (23 CSU).
- **M7. Module of Elective Matter:** The electives are theoretical courses, which aim at deepening the students' knowledge in specific fields of biology and education (30 CSU). Students usually choose elective courses that relate to their thesis and/or their individual interests.

Geography Education study programme

The nine content areas in the programme are:

- **M1. General and Personality Knowledge:** same as BESP (8 CSU).
- **M2. Basic Science:** Basic compulsory courses on the different natural sciences and mathematics are offered in the first two semesters (14 CSU).
- **M3. General Pedagogical Knowledge:** These compulsory courses cover fundamental education concepts, general pedagogical knowledge, and understanding of students, the learning context, and the objectives, values, and philosophy of learning (8 CSU).

- **M4. Content Pedagogical Knowledge:** This group of mandatory and elective courses focuses on geography-specific content and its connection to teaching and learning strategies (24 CSU).
- **M5. Physical Geography:** These compulsory and elective courses examine natural processes and patterns in the environment, including the atmosphere, hydrosphere, biosphere, and geosphere (42 CSU).
- **M6. Social Geography:** These compulsory and elective courses explore the interactions between humans and their social environments, analyzing relationships among individuals and groups (20 CSU).
- **M7. Regional Geography:** These compulsory and elective courses study the unique characteristics of various regions, incorporating natural elements, human elements, and the concept of regionalization (6 CSU).
- **M8. Environmental and Disaster Geography:** These compulsory and elective courses address critical issues such as disaster risk reduction, regional resource potential, and the interplay of economic, environmental, social, health, safety, and sustainability factors (8 CSU).
- **M9. Other Field Expertise (Multi and Interdisciplinary)**: These compulsory and elective courses aim to deepen students' interest in specific areas of geography, support their thesis research, and enhance understanding in the fields of education, science, technology, and industry (28 CSU).

Upon reviewing the curriculum content for both the Biology Education and Geography Education study programmes, the experts noted that Content Knowledge within the curricula is very high, as well as it is the workload. For example, for Biology Education, a wide variety of specialized courses on diverse biological subjects is offered. Students demonstrate a remarkable level of scientific expertise in numerous biological domains, including botany, zoology, biotechnology, microbiology, molecular biology and cell biology.

To better understand this emphasis, the experts sought clarification from the programme coordinators, who explained that the programmes aim to provide future teachers with a solid foundation in science. This rationale explains the decision to expand the body of knowledge covered in the curriculum.

However, in the context of educational programmes, the experts believe there should be a heightened focus on Pedagogical Content Knowledge, as this aspect appears to be underdeveloped and requires more explicit attention. An important recommendation is, therefore, to reconsider the amount of content concerning Content Knowledge and Pedagogical Content Knowledge (PCK). In order to alleviate the workload, the modules

should be streamlined and the emphasis be placed on Content Knowledge in accordance with the school curriculum, while also prioritising PCK.

Informatics and Computer Engineering Education study programme

The nine content areas in the programme are:

- **M1. General and Personality Knowledge:** same as BESP (8 CSU).
- **M2. Basic Science and Computer:** Basic compulsory courses in mathematics and information and computer technology are offered in the first two semesters (16 CSU).
- **M3. General Pedagogical Knowledge:** same as ICEESP (8 CSU)
- **M4. Content Pedagogical Knowledge:** This group of course provides an understanding of the basic concepts of education related to the informatics and computer engineering education content (25 CSU).
- **M5. Content Knowledge:** These courses concentrate on subject-specific material pertaining to the basics of computer engineering and education (26 CSU).
- **M6. Software Engineering:** These courses focus on fundamental concepts of software engineering, from requirements analysis, system design and code writing, to testing and maintenance (22 CSU).
- **M7. Computer Network Engineering:** These courses explain the basic principles of computer network systems, including configuration design and management of computer network infrastructure (14 CSU).
- **M8. Multimedia:** These courses focus on computer graphics and develop skills in designing and implementing animation projects (14 CSU).
- **M9. Other field expertise (multi and interdisciplinary):** These courses are designed to support students in their studies of pedagogy and in completing their theses within the field of computer education and engineering (40 CSU).

iii. Internship

According to the self-assessment report, several internship and field experience programmes are in offer, which are managed directly by the ministry, university, or study programmes. These provide students opportunities to work in schools and collaborate in academic and non-academic activities.

Internship and field experience are integrated into the Bachelor's curriculum through the MBKM programme. As part of MBKM, students are allowed to undertake a study load of up to 20 - 30 credits, allocated to various activities. These include but are not limited to

Campus Teaching, Certified Internships, Indonesian International Student Mobility Awards, Thematic Community Service (KKN) and Independent Student Exchange.

During the audit, the students shared their experiences with these activities. Both Biology Education and Geography Education students reported to have completed their internships in school settings, matching 20 credits. In addition, Informatics and Computer Engineering Education students shared that they have chosen teaching assistance. They clarified that the curriculum includes two separate internships—one in industry and the other in an educational setting. Following a workshop, teaching assistance can be converted into industry experience. If the internship content does not align with the course, it is recognized as soft skills development.

School Teaching Practice (PLP), offered in the 6th semester, carries a total of 3 credits. This course serves as an internship where students observe the learning process in schools, develop learning tools, and conduct guided teaching sessions. Additionally, students engage in reflective activities alongside teachers and supervisors.

When asked about the supervision of school teaching practice, the programme coordinators explained that during the 4-month practicum, lecturers are assigned to oversee student activities at the schools. Supervisors monitor the student's progress once a week, either through in-person visits or via Zoom discussions. Each supervisor is responsible for 5 to 6 students.

Students must also complete Community Service (KKN), which is compulsory for all Indonesian students. KKN is offered in the 7th semester for a total of 4 credits. It often takes place in villages or rural areas where students stay and live together with local people. The KKN programme is carried out for four months and involves several parties, including the university as the coordinator of activities, the study programmes, and the villages that become KKN partners.

During the audit, school partners confirmed that UNM has Memorandums of Agreement (MoA) with them for external collaboration on these activities. They also noted that their institutions have received students as interns, highlighting the contributions those students have made. The experts appreciate that there is a good relationship with schools.

iv. Mobility

According to the self-assessment report, the study programmes being reviewed collaborate with domestic and international institutions to facilitate student mobility. The faculties report the following figures:

Table 2: Inbound and Outbound student mobility.
Source: Self-assessment report, UNM.

Year	BESP				GESP				ICEESP			
	Domestic		International		Domestic		International		Domestic		International	
	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In
2019	4	-	4	-	-	-	-	-	-	-	-	-
2020	-	-	-	-	-	-	-	-	-	-	-	-
2021	-	-	-	-	-	-	-	-	1	-	-	-
2022	-	1	-	-	1	6	-	-	-	-	-	-
2023	2	3	4	-	2	8	1	-	-	-	-	12

During the audit, the experts inquired with the students about their participation in mobility programmes and whether the university supports them in studying abroad or domestically. Students from the Biology Education programme highlighted participation in international seminars. Some students have travelled to South Korea, with the university covering transportation and accommodation costs. Geography Education students noted an international internship opportunity in Taiwan, facilitated by collaboration with the Taiwanese government. As a result, ten students received full funding from the Taiwanese government for their participation. Informatics and Computer Engineering Education students reported exchange programmes to Malaysia, supported by both the faculty and the department. Additionally, opportunities in China, with transportation costs covered by the faculty.

The experts acknowledged the university's efforts to support students but noted that participation in these activities is still low, according to the data. To gain more insight, they asked students if they would be interested in studying abroad, and most of the students responded positively. However, they identified the primary obstacle to participation as the requirement to demonstrate English language proficiency through an IELTS, TOEFL, or an equivalent certificate.

Aligned with the programmes' aspirations to play a more prominent role on the international stage, the current English language proficiency of students becomes a critical area for development. To support the internationalization goals of the three programmes, it is recommended to further enhance students' English language skills.

In the experts' view, the university could consider the implementation of preparation courses tailored specifically to improve English skills. These courses would be particularly beneficial for students intending to participate in study abroad programmes such as IISMA, and other student exchange opportunities.

The experts emphasize that it is very useful for students to spend some time abroad during their Bachelor's studies to get to know other educational systems and enhance their job opportunities. To support this, the experts recommend that the three

programmes provide more information and support for internationalization efforts aimed at expanding student mobility. They also see an opportunity to initiate additional international exchange programmes, which would encourage cooperation with international schools. This could lead to more available placements and scholarship opportunities for students. Organizations such as ERASMUS and the German Academic Exchange Council (DAAD) offer funding for international study, further facilitating these initiatives.

In this regard, the experts recognize that the Faculty of Mathematics and Natural Science has already taken a significant step by implementing an international class programme. They commend this initiative as a valuable contribution to enhancing UNM's international visibility and advancing the internationalization of its degree programmes.

In terms of credit recognition for study performance achieved abroad, students confirmed to have successfully converted credits after mobility, indicating a straightforward process (more under criterion 1.5).

v. Curriculum review

As discussed under Criterion 1.1, the Programme Learning Outcomes and curricula of the programmes undergo review every five years. The last changes and adjustments were made in 2021 in alignment with the implementation of the Indonesian Ministry of Education and Culture's policy on Independent Learning Independent Campus No. 3/2020.

The curriculum review takes into consideration the advancements in science and technology, current government regulations/policies, and the needs or demands of the job market.

The experts acknowledged the faculty's commitment to continuous improvement as the basis for sustainability. **However, they emphasized that the programmes should place greater emphasis on implementing a structured approach to the curriculum that is grounded in effective educational methods and consistent with the specific learning objectives students are expected to achieve. This involves ensuring the content is thoughtfully tailored, rather than relying on generic or unadapted information.**

The experts believe that the programmes should ensure that planning, implementing and evaluating the curriculum are consistently guided by educational principles and directly aligned with the goals of the learning outcomes. To ensure this alignment, it is essential that the module description be clarified and updated, as discussed further under criterion 4.1.

Criterion 1.4 Admission requirements

Evidence:

- Self-assessment report
- University website: https://unm.ac.id/
- UNM admission websites: https://pmbm.unm.ac.id/
- UNM Academic Calendar 2024/2025: https://unm.ac.id/kalender-akademik/
- Admission-related regulation as part of the self-assessment report
- Statistical data about the progress of studies, programmes under review
- Discussions during the audit

Preliminary assessment and analysis of the experts:

According to the self-assessment report, admission procedures and policies for new students follow national regulations. The requirements, schedule, registration venue, and selection test are announced on UNM's webpage and thus accessible for all stakeholders.

There are three different ways by which students can be admitted to a Bachelor's programme at UNM:

1. **National selection based on achievement to enter state Universities** (*Seleksi Nasional Berbasis Prestasi,* SNBP). A national admission system, which is based on the academic performance during the high school. The maximum number of students admitted through this selection is 50% of available seats.
2. **National selection based on tests to enter state Universities** (*Seleksi Nasional Bredasarkan Tes*, SNBT). This national selection test is held every year for university candidates. It involves a computer-based written test in the form of a scholastic potential test, English language proficiency test and academic potential test. It accounts for 30% of the admitted students at UNM.
3. **Independent selection system to enter state Universities** (MANDIRI). Students are selected based on an online test (similar to SNBT) specifically held by UNM for prospective students who have not been accepted through SNBP or SNBT. 20% of the students at UNM are admitted through this test.

UNM determines the capacity for each degree programme through a coordination meeting involving university leaders, alongside faculty and department representatives. The quotas are set based on several factors, including UNM's strategic plan, the development plans of the faculty/department, evaluation results from previous student admissions, and the capacity of available facilities and human resources in each department.

Over the past five years, intake numbers for the undergraduate programmes have been between 41 and 82 students in the BESP programme, between 80 and 88 in the GESP programme, and between 195 and 410 in the ICEESP programme.

Table 3: Admission data.
Source: Self-assessment report, UNM.

Academic Year	BESP		GESP		ICEESP	
	Applicants	Accepted	Applicants	Accepted	Applicants	Accepted
2019/2020	990	41	680	88	2231	195
2020/2021	868	49	410	85	1869	252
2021/2022	936	82	325	80	2324	307
2022/2023	707	45	331	81	3111	389
2023/2024	216	41	293	81	3226	410

From the data, the number of applicants exceeds the number of available places but the applications have dropped in the last five years by 78% and 57%, respectively, for the Biology Education and Geography Education programmes. In contrast, in the Informatics and Computer Engineering Education programme, the number of applications has increased by 45% between 2019/2020 and 2023/2024.

In the Biology Education and Geography Education programmes, an international class (ICP) and a "regular" class are offered. ICP students need to have a high score in their English grades at high school and in the different admission tests.

Undergraduate students at UNM have to pay tuition fees. There are seven different levels of student tuition fees which range from 500 thousand to 5 million IDR (equal to 30 to 300 €) per semester. The level of tuition fees depends on the degree programme, the entrance path, and the students' parents' economic and social background. In addition, a tuition waiver scheme is available upon request and the amount depends on the parents' economic status. More, several scholarships for students with financial difficulties are available, such as from the government, industries, foundations, and UNM alumni association.

The details of the application process at UNM and further information on admissions criteria and deadlines can be found in the UNM Academic Regulation, which are also published on the university's webpage.

In summary, the experts confirm that the admission requirements and procedures are binding and transparent, and ensure the necessary prior qualification of students. Rules for the recognition of qualifications achieved externally are clearly defined and facilitate the transition between higher education institutions. The assessment team also saw evidence that the university is tracking its students' progress and achievements (more under Criterion 1.5)

Criterion 1.5 Workload and Credits

Evidence:

- Self-assessment report
- Curriculum Documents, programmes under review
- Student Services Instrument, programmes under review
- Discussions during the audit.

Preliminary assessment and analysis of the experts:

Based on the National Standards for Higher Education of Indonesia (SNPT), all programmes use a credit point system called CSU. According to the system, 1 CSU credit consists of:

a. lecturers process activities: 50 minutes/weeks/semester,

b. structured activities: 60 minutes/weeks/semester,

c. individual activities: 60 minutes/weeks/semester.

In comparison to the ECTS credit system, wherein 1 ECTS credit equals 25-30 hours of students' workload per semester, 1 CSU is awarded for 170 minutes of workload per week per semester. 1 semester equals 16 weeks, including 2 weeks for midterm and final exams. Therefore, 1 CSU = 170 x 16 weeks = 2.720 minutes or 45 hours of learning activities.

The university has introduced the ECTS credit system to make the programmes internationally comparable. In the Bachelor´s programmes, it is defined that 30 hours of students' workload are required for awarding 1 ECTS credit. Then, the conversion rate from CSU to ECTS is 45/30 =1,5.

The details and the student's total workload are described in the respective module description. In response to questions about the workload, the students expressed that it can be heavy at times and could be reduced.

Upon analyzing the curricular structure, the experts observed that the semester workload is composed of several modules, most with a credit load ranging from 2 to 3 CSU, with the exception of Community Service and Field Practice (4 CSU) and Thesis (6 CSU). This structure contributes to a very high exam load. To create a more balanced and manageable workload, the experts believe that the programmes should try to reduce the number of modules by combining them to enhance the comprehension of the subjects and decrease the number of exams.

The minimum number of credits to graduate is a total of 144 CSU (216 ECTS). The degree programmes should be completed within 8 semesters, where in each semester students usually take 18 - 20 credits. Outstanding students, who have a GPA above 3,5, can take up to 24 credits per semester. This regulation gives students the opportunity to finish their studies in 7 semesters. The maximum study period in the Bachelor's programmes is 14 semesters.

The experts reviewed the information provided as confirmation that student workload is corroborated by the institution. However, they could not find clear evidence and data confirming that instruments are in place to regularly monitor whether the credits awarded for each module correspond to the actual student workload. Consequently, the panel asks that the university establish a formal mechanism to systematically monitor and assess the actual workload of students (e.g., using questionnaires) and adjust the awarded ECTS points accordingly. Displaying students' workload in ECTS points is an essential step in facilitating academic mobility (according to European standards, 30 ECTS points should be awarded per semester).

Furthermore, for the three programmes under review, the university provided key performance indicator data in its self-assessment report, including metrics such as average study period and dropouts. Analysis of the 2019–2023 cohorts shows that among students enrolled in the BESP and GESP, the dropout rate is near 0%. The auditors emphasize the very low dropout rate of student. This indicates that most students complete the programmes although slightly exceeding the expected duration, which indicate an average of 4,72 years for the BESP and 4,62 years for the GESP.

For the ICEESP programme, the drop-out rate for the period 2017-2019 was approximately 6%. While most students persist in their studies, they also tend to exceed the expected duration, with an average completion time of 4,8 years.

The experts request that the university clarify the reasons behind students exceeding the anticipated length of study. Additionally, they seek information about the measures currently in place to support students in completing the programme within the prescribed duration.

All in all, there is a credit system in place centred on the student workload. This system includes both contact hours and self-study time. All compulsory components in the Bachelor's programmes are included. However, at this point, there is no clear evidence to confirm regular monitoring of whether the credits awarded for each module align with the actual student workload, it also remains unclear to what extent students are involved in these evaluation processes.

The experts, nonetheless, confirm that regulations for the transfer of credits obtained outside of UNM exist, which is known by the students.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-assessment report
- Module descriptions, programmes under review
- System and Application Management Open Knowledge (SYAM-OK) platform: https://syam-ok.unm.ac.id/
- Discussions during the audit

Preliminary assessment and analysis of the experts:
In the self-assessment report, UNM records that appropriate educational instruments and methods are implemented for the Bachelor's programmes under review. The variations in learning methods and tools are adjusted to the level of knowledge, skills, and competences set in each module. Learning methods are listed in each course's Semester Lesson Plan (*RPS*), which serves as a roadmap for both lecturers and students during the learning process.

The UNM e-learning system, SYAM-OK, supports blended learning activities and facilitates access to learning materials, assignments and exams. According to the Academic Regulations, class activities, other than practical sessions, are conducted using an online system for at least 30% of the time.

The university's approach to learning is student-centred and involves teaching methods that prioritise the student's involvement in the learning process in alignment with guidelines from the Minister of Education and Culture. The MBKM policy has been integrated into the Bachelor's curricula to give students more flexibility in achieving their goals. With MBKM, students can learn from different institutions and communities.

The Faculty of Mathematics and Natural Sciences and the Faculty of Engineering expose their students to relevant external parties through initiatives such as inviting guest lecturers and visiting professors, promoting student exchanges and internships, and establishing partnerships with international and local institutions.

According to the self-assessment report, the diverse teaching methods employed within each programme include but are not limited to lectures and presentations alongside case-based and project-based learning. The module descriptions state the teaching methods applied in each learning unit. The medium of instruction is predominantly Bahasa

Indonesia, although specific courses incorporate English. Biology Education and Geography Education programmes offer an international class using English as the mandatory instructional language.

Seminar courses are conducted in the 6th semester to prepare students for three research-related activities in the 7th and 8th semesters: the research proposal seminar, the research results seminar, and the thesis defense.

During the discussions with students, the experts learned they were satisfied with the quality of teaching and learning in the programmes under review.

In summary, the expert group considers the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes. In addition, they confirm that the study concept of all three undergraduate programmes comprises a variety of teaching and learning forms as well as practical parts that are adapted to the respective subject culture and study format. It actively involves students in the design of teaching and learning processes (student-centred teaching and learning).

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

The experts thank UNM for the provided statements and additional documentation concerning criterion 1.

(ASIIN 1.1) Competence concept - BESP and GESP

The experts acknowledge that UNM defines competency as a combination of attitudes, knowledge, general skills, and special skills that reflect student achievement, focusing on problem-solving and critical thinking in general and special skills. However, they reiterate the comments in the accreditation report and view the ongoing curriculum revision for BESP and GESP, as mentioned in response no. 5, as a valuable opportunity to incorporate this input. The experts emphasize the need to update the curriculum document and align the literature with the concept outlined in the report.

(ASIIN 1.1) Graduate profile and primary-level teaching – All programmes.

ICEESP:
According to response no. 2, the university anticipates the government's intention to integrate Computational Thinking into primary education by reflecting this in the Educational Sciences part of the programme. However, the experts believe that any subject-related topics and their technical support, as mentioned in the final report (Criterion 3.2 iii), are still missing. Therefore, a substantial education for a primary teacher in computer science is not possible.

BESP and GESP:

According to response no. 2, the Curriculum Document has accurately stated that the study programmes focus on preparing prospective teachers to teach at the secondary and senior high school levels. As a result, the experts have no further comments regarding these two programmes.

(ASIIN 1.1) Career outcomes - ICEESP

In response no. 3, UNM states that a new Computer Science programme is being developed, allowing the ICEESP programme to focus solely on preparing teacher candidates. However, it is not specified how the university is making clear that graduates are specifically trained as teachers.

The new Computer Science programme will provide a clear pathway for students not pursuing careers in education and has already been approved by the university senate. While the experts appreciate these developments, they maintain their recommendations, as the necessary actions are still being implemented to fully realize this change.

(ASIIN 1.1, 1.3) Approach to the curriculum – all programmes

The experts appreciate that, as mentioned in response no. 4, the university has already revised the documents. However, since this is an ongoing process, they recommend continued efforts to ensure further progress.

(ASIIN 1.3) Content Knowledge and Pedagogical Content Knowledge - BESP and GESP

The experts appreciate that the university has agreed to revise the curriculum based on ASIIN's input, specifically by reducing science content and increasing pedagogical content by 60%. However, the experts retain their recommendation as the process is still ongoing, and there is no evidence of changes being implemented yet.

(ASIIN 1.3) Student and staff English language proficiency – All programmes

UNM requires students to complete English language training, with successful participants receiving a certificate upon achieving the designated score. The experts commend the implementation of this training but ask the university to clarify whether the English training is provided free of charge. If the training is paid, it could pose a financial barrier for some students.

UNM also notes that students are encouraged to communicate in English on campus and use bilingualism during lectures. Opportunities for international engagement, such as exchanges and conferences through ERASMUS and DAAD, are promoted. The experts support these initiatives and recommend sustained efforts in this area.

The experts observe that UNM has not provided sufficient evidence of structured training for teaching staff***.***

(ASIIN 1.3) English preparation courses – All programmes

Addressed above. UNM asserts that it has established mandatory English language training, which provides certification, and supports student mobility through international programmes.

(ASIIN 1.3) Internationalization opportunities – All programmes

UNM has noted in response no. 14 that several measures are currently being implemented. The university has already established support for lecturers involved in international programmes, including grant funds. However, the solution is more geared towards lecturers, and it remains unclear whether the university will provide grant funds for student international programmes (aside from IISMA). The experts point out that during the audit session, there were reports that students had self-funded their participation in international conferences. The experts maintain the recommendation.

(ASIIN 1.5) Number of modules – All programmes

UNM has planned several strategies to address the high number of modules with low credit loads, which contributes to a high exam load. These include combining related courses to decrease the number of exams, allowing students to focus on in-depth understanding. The evaluation system will diversify by incorporating project-based assessments and case studies, moving away from excessive written exams, which align more closely with workplace skills like analytical thinking and problem-solving. A competency-based curriculum will also be introduced, emphasizing skill acquisition over credit numbers. Technology will also play a role through blended learning methods to ease exam pressure and promote independent study. While acknowledging these efforts, the experts note that they are still in progress and, therefore, maintain their recommendation.

(ASIIN 1.5) Mechanism to monitor the student workload – all programmes

According to response no. 9, the experts note that a solution is currently being developed. This solution involves integrating an instrument into EDOM (which students are required to complete at the end of each semester) and the Equality platform, allowing for systematic monitoring and improvements based on student feedback. The experts support these measures but maintain the initial requirement until they are fully implemented.

(ASIIN 1.5) On-time graduation support – All programmes

***ICEESP* and GESP**
The experts note that measures mentioned in response no. 10 are in place and judge them as sufficient. UNM has revised its curriculum to reduce excessive workloads, introduced more flexible study options, and strengthened academic advising

BESP
The experts appreciate the initiatives already implemented. However, they are convinced that this is an ongoing challenge that requires consistent efforts.

Considering the abovementioned points, the experts regard this criterion as partially fulfilled.

2. Exams: System, Concept and Organization

Criterion 2 Exams: System, concept and organization

Evidence:

- Self-assessment report
- Module descriptions, programmes under review
- Academic Guidelines, programmes under review
- UNM Academic Calendar 2024/2025: https://unm.ac.id/kalender-akademik/
- Examination-related procedures and regulations
- Samples of student's work (projects, exams and thesis)
- Discussions during the audit.

Preliminary assessment and analysis of the experts:

i. Forms of Examinations and Exam Schedule

Formative and summative assessments are used to evaluate the student achievement of the programme learning outcomes and course learning outcomes, including aspects of knowledge, attitude and skills, based on a predefined grading scale reference.

The assessment methods encompass student participation (e.g., discussions, presentations, and practicum activity), project assessments (e.g., case study-based or project-based learning), and cognitive/knowledge assessments (e.g., quizzes, assignments, midterm exams, and final semester exams). As stated in the Academic Regulations, the assessment of the student's performance usually consists of the following:

Table 4: Assessment percentage distribution
Source: Self-assessment report, UNM.

Assessment aspect	Percentage
Project Results	20 - 40%
Participations (Discussion, Presentation, Practicum Activity)	20 - 40%
Mid-Term Score	0 - 15%
Final Test- Score	0 - 15%
Assignment	5 - 20%
Quizzes	0 - 5%

The grading system is different for the teaching internships, the community service, and the final project. The Semester Lesson Plan (*RPS*) specifies the course's Programme Learning Outcomes (CLO) and identifies the types of examinations used to assess the

achievement of these learning objectives. The assessment procedure is communicated to students during the explanation of the RPS on the first day of class.

The exam schedule at UNM is determined based on the academic calendar students can access through the university website. This calendar contains the dates for the 8th week of the mid-term exam and the 16th week of the final exam. These dates will be used as a reference for conducting exams at the study programme level.

The expert panel acknowledges the transparency of the examination system. However, in line with the assessment in Criterion 1.5, they note that the number of exams is generally very high due to the way the curriculum is structured. This results in an increased workload for both students and lecturers (more details can be found under Criterion 1.5).

That said, the experts confirm the programmes use various forms of examination, which are competence-oriented. Overall, these examinations are suitable for verifying the achievement of the programme learning outcomes.

ii. Grading and Graduation Requirements

The final grade of each module is a combination of the scores of the individual types of assessment. The exam grade is presented in an absolute numeric value with a range of 0-100. The final grade of the course is given as a quality letter and quality score as follows:

Table 5: UNM Grading System
Source: Self-assessment report, UNM.

Grade	Degrees of Mastery	Percentage Range	Numeric Value
A	Excellent	91-100%	4.00
A-	Very Good	86-90%	3.75
B+	Good	81-85%	3.25
B	Satisfactory	76-80%	3.00
B-	Fair	71-75%	2.75
C+	Adequate	66-70%	2.25
C	Average	61-65%	2.00
C-	Below Average	56-60%	1.75
D+	Marginal	51-55%	1.25
D	Poor	46-50%	1.00
D-	Very Poor	41-45%	0.75
E	Fail	Below 41%	0.00

Students pass if they obtain at least a C grade. Based on the regulations, bachelor's students must have attended at least 80% of all scheduled activities for a particular course to be eligible to take the final exam.

To graduate from the programmes, students must have completed the required 146-148 credits, with a minimum GPA of 2.76. According to the Academic Regulations, students have to leave the university at the end of the third semester if they achieve a GPA below

2.00 out of at least 30 credits. In addition, they have to resign if they do not complete their studies within the limit of 7 years or have committed a criminal act and/or have violated the provisions as stipulated in the regulations.

If there are students who get low scores, they are allowed to re-apply for the exam. Students are only allowed to retake the exam once. The assessment results from the lecturer team are recorded within the UNM academic system https://sia.unm.ac.id/. Students who fail must retake the course in the following semester or during the short/bridge semester. When students have objections to their exam results, they have the chance to appeal within the period established in the academic calendar.

UNM has a policy on academic integrity. If a student is found to have committed academic violations such as plagiarism, falsifying grades, or other academic misconduct, they will be subject to sanctions that correspond to the severity of their actions. The dean or director will determine the punishment after being considered by the faculty senate, lecturing council, or disciplinary commission per the applicable regulations. To help prevent plagiarism, the university offers teachers and students access to anti-plagiarism software, which can be used to check for similarities in written work.

iii. Thesis

Every student in the three undergraduate programmes under review is required to do a final project (Bachelor's thesis). This project is conducted independently under the guidance of one or more supervisors and usually consists of literature reviews, practical research, and data analysis. Both the student and the supervisors might decide the topic and content of the project. In many cases, the lecturers offer particular topics connected to their research.

The teaching staff confirmed to the experts that they suggest potential topics for final projects based on their own research projects. All faculty members supervise theses. Students are required to design a research proposal during a seminar course, typically held in the seventh semester. This proposal includes a timeline for the project, which is discussed with their academic advisor. If both parties agree on the topic, students must formally apply for permission to proceed with the suggested project.

The expert group examined a selection of final theses and determined that they were of an appropriate academic level. However, for the Biology Education and Geography Education programmes, the experts noted that students mainly reference local literature. They recommend that the lecturers guide students to also explore current international research to broaden their perspectives (more under Criterion 4.1).

All in all, the expert group finds that appropriate university-wide and programme-specific rules and procedures govern the examination systems. These rules and procedures are adequately communicated and transparently published. It is regularly reviewed whether the exams can adequately determine the achievement of the learning objectives and whether the requirements are appropriate to the level of the degree programmes.

The students in the interviews confirmed that they are aware of all necessary information regarding examination schedules, forms, and grading rules. They reported that they are provided with sufficient time to prepare for exams.

Lecturers in the discussion reported that a variety of exam forms are used to check the attainment of the respective learning outcomes, including a mix of oral and written exams. The experts acknowledge that forms and assessment rubrics to assess the quality of the student's work are available for the programmes.

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

The experts thank UNM for the provided statements and additional documentation concerning criterion 2.

(ASIIN 2) High exam load – all programmes

Addressed under criterion 1.3

(ASIIN 2) Thesis work and international research - BESP and GESP

The experts positively note that UNM has strengthened the role of supervisors in guiding students to use reputable international journals and global academic books. Training has also been provided for student on the use of academic repositories and scientific reference management using Zotero/Mendeley. However, the experts believe that evidence from the implementation results should be presented. Moreover, most of the references in the module description are very old.

Considering the abovementioned points, the experts regard this criterion as mostly fulfilled.

3. Resources

Criterion 3.1 HR Resources, Staff Development and Student Support

Evidence:

- Self-Assessment Report

- Staff Handbooks and Lecturer Profiles, programmes under review
- Staff-related regulation and procedures
- Discussions during the audit

Preliminary assessment and analysis of the experts:

i. Staff numbers and qualifications

Academic positions within UNM encompass professors, associate professors, assistant professors, and lecturers. The specific responsibilities and duties in teaching, research, and supervision vary according to the academic position.

The Biology Education study programme consists of 20 teaching staff members: five professors (25%) and four associate professors (20%), with the remainder being full-time lecturers. 45% of the staff hold a doctoral qualification.

The Geography Education study programme is supported by a team of 20 teaching staff members, including four professors (20%), 12 associate professors (60%), and four assistant professors (20%). 65% hold doctorate degrees.

The Informatics and Computer Engineering Education study programme is supported by a team of 49 teaching staff members, including eight professors (16%) and 15 associate professors (31%), with the remainder being full-time lecturers. 47% hold doctoral qualification.

Details of the academic qualifications of the members of the teaching staff are described in the staff handbooks, which are accessible via the respective programme's websites.

During the meeting with representatives from the Rector's office, the experts asked about how UNM appoints lecturers for teaching subjects and the criteria involved in this process. The representatives explained that while the Indonesian government organizes this process, the university has the authority to conduct interviews. Candidates must possess at least a master's degree.

The experts also inquired about gender equality in staff recruitment. The representatives confirmed that there are no gender-related issues at UNM and that both male and female candidates are evaluated equally, with appointments made based on merit and competence.

While appreciating this approach, the experts note, based on the self-assessment report, that, with the exception of one position, all deans of the ten faculties are male. When viewed in conjunction with the Chancellor, this results in a male quota exceeding 90% in

these leadership roles. There is potential for the university to further progress by developing and implementing a formal policy on equal opportunities for women, with a particular focus on the representation of women in senior leadership positions[6].

The lecturer-to-student ratio is regulated by the National Accreditation Agency for Higher Education (BAN-PT). Based on the data provided, the lecturer-to-student ratio is 1:30 for BESP, 1:21,65 for GESP and 1:29 for ICEESP, respectively. The expert team confirms that the ratio of lecturers to students is appropriate to fulfil the current needs of the programmes.

The experts overall attest that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes.

ii. Job Conditions and Performance Review of Staff

According to the self-assessment report, the monitoring and evaluation of lecturers are based on multiple factors: student learning performance, work performance assessed by the head of the respective department, and feedback gathered through teaching and learning process questionnaires distributed to students at the end of each semester. Work performance is specifically evaluated through the Lecturer Performance Index (IKD), which is a tool designed to measure lecturers' achievements across the Tri Dharma activities. The IKD incorporates a range of criteria, including the quality and impact of teaching, research output, participation in professional development, and contributions to the community.

In addition, UNM is required to align with the Minister of Education and Culture's Main Performance Indicators for State Universities (IKU-PTN), which include specific targets for improving the quality of lecturers and education personnel. These targets are designed to enhance academic standards, professional development, and overall institutional performance. At the government level, the evaluation of lecturer performance is conducted through the online system SISTER, which integrates various performance metrics. This system uses the Employee Work Target (SKP) and Lecturer Workload (BKD) to assess the individual achievements of lecturers.

[6] In accordance with the commitment of the German universities of 14 May 2024, the following measures are recommended in the event of a vacant position being filled: i. Active recruitment to expand the candidate pool; ii. The implementation of gender-equitable selection processes; iii. The establishment of remuneration structures that are equitable between the sexes (gender pay gap); iv. The incorporation of gender sensitivity and expertise on gender-related matters into institutional frameworks; and v. The institutional monitoring of developments in these areas.

Typically, a teaching staff member is expected to carry a regular workload of at least 16 credit hours per semester, with the distribution of these hours depending on their academic position. Excess credits earned by lecturers for their performance will be appreciated through the remuneration system.

When discussing the balance between academic workload and life outside the university, the teaching staff reported that the quality assurance office ensures that the lecturers' workload is manageable. They also confirmed that the university provides rewards for excess credits. Lecturers who handle more than 16 credits can earn additional compensation; specifically, if they have 20 credits, they receive a reward equivalent to 4 credits. Overall, they indicated that managing their time is not a problem. Additionally, the teaching staff emphasized that they are part of a collaborative teaching team, which helps them manage their responsibilities effectively. In terms of research, they work alongside students and emphasize teamwork.

From the discussion, the expert group concludes that the teaching staff is satisfied with their working conditions.

iii. Staff Development

UNM promotes the training of its teaching and technical staff to improve their educational skills and teaching methods. Lecturers receive pedagogical training and professional development programmes such as PEKERTI (Instructional Technique Basic Skill Training), which is aimed primarily at junior lecturers. Additionally, the Applied Approach (AA) training is mandatory for all staff members and focuses on improving pedagogical knowledge. This training is specifically designed for junior staff to help them implement various teaching methods and develop syllabi and course content.

Teaching staff at UNM are required to participate in the lecturer certification programme provided by the Directorate General of Higher Education (*Direktorat Jenderal Pendidikan Tinggi*, DIKTI). An official teaching certificate is issued once the faculty member has successfully completed the certification process.

The professional development of teaching staff is supported through both degree and non-degree training programmes offered at Indonesian universities and abroad. Lecturers can enrol in doctoral programmes that align with their research interests. Young faculty members holding a Master’s degree are encouraged to pursue doctoral studies.

Furthermore, senior faculty members are required to mentor and train newly recruited staff in several key areas: teaching, research activities, journal publication, and community

service. Junior staff members are expected to assist senior teachers by serving as sit-in lecturers for at least one semester.

During the audit, the experts asked the teaching staff about opportunities to spend time abroad and participate in international projects. They found that UNM and its faculties provide funding for international conferences, allowing teachers to apply for financial support through proposals. Additionally, funding from the Ministry of Research, Technology, and Higher Education covers conference fees, publication costs, and travel expenses. To illustrate this, the teaching staff mentioned a recent participation in an international conference in Japan.

The experts also inquired about whether the English language proficiency of the teaching staff is consistently being improved. The teaching staff reported that there is ongoing encouragement to enhance their English skills. The university offers courses aimed at this development, and many young lecturers participate in these courses.

Overall, the members of the teaching staff are satisfied with the internal qualification programme at UNM, the opportunities to improve their educational abilities further, and the opportunity to spend some time abroad to attend conferences, workshops, or seminars.

The assessment team confirms that UNM offers support mechanisms and opportunities for members of the teaching staff who wish to develop their professional and teaching skills. **The team appreciates the initiatives currently available. However, they believe that <u>for the three study programmes</u> these efforts should be strengthened. The development of academic staff should be achieved through more opportunities to improve their teaching skills and to spend time abroad to attend conferences or workshops. The university should also provide a system to foster internationally visible research by publishing in high-level international journals, participating in international conferences worldwide and visiting international universities as guest lecturers.**

In connection with this and Criterion 3.2 below, the experts note that third-party funding is low and the possibilities of increasing this funding should be examined. This would make it possible to invite more foreign researchers to UNM.

iv. <u>Student Support and Student Services</u>

According to the self-assessment report, UNM has built a well-structured framework to provide academic and administrative support services to the students.

Each student is allocated an academic advisor who is their first point of contact in case of any struggles or problems during their studies. The academic advisor monitors academic progress at the beginning of each semester through academic guidance books and identifies necessary improvement actions.

Support staff includes librarians, laboratory assistants, technicians, operators, programmers, and administrative personnel.

The experts got the impression that the communication between students and teaching staff is excellent. The students stressed that the lecturers are open-minded, take their opinions and suggestions into account, and changes are implemented if necessary.

Fourth-year students preparing for their Bachelor's thesis have one or more supervisors allocated based on the topic of their thesis. If a student conducts their thesis outside of UNM, they may have an external supervisor. The thesis supervisor's role is to guide students in completing their final project, which includes conducting research and writing the final report

All students at UNM have access to the digital academic information system. The students' profiles (student history, study plan, academic transcript and grade point average (GPA), lecturer evaluation, and course list) are available via the digital platform.

Students who are experiencing mental health challenges, such as high workloads and fear of failing classes, can seek professional assistance from the university medical center. Additionally, there are various student organizations at UNM, including activity clubs that are categorized into arts, sports, religious groups, and other non-curricular activities.

Overall, there is a positive relationship between the students and the teaching staff, as well as effective mentoring by teachers and an open atmosphere between students and staff. Resources are available to provide students with individual assistance, advice and support. The support structures help students achieve the intended learning outcomes and complete their studies. Good mentoring by the teaching staff is an important criterion of success. The students are well-informed about the services available to them.

Criterion 3.2 Funds and equipment

Evidence:

- Self-assessment report
- University website: https://unm.ac.id/
- List of projects with external funding, programmes under review
- List of partners, programmes under review
- Visitation of participating institutes and laboratories

- Discussions during the audit.

Preliminary assessment and analysis of the experts:

i. Funds

Basic funding for the undergraduate programmes and associated facilities is provided by UNM and the respective faculties. Both the programmes and faculties play an active role in the development of the University Work Plans and Budgets (RKAKL), ensuring alignment with academic priorities and financial planning.

The financial sources are government funding, student tuition fees, and community and foreign funding. Additional funds for research activities can be provided by UNM or the Indonesian government, but the teaching staff have to apply for them. There are some cooperation with schools and the private sector, but most important are the funds from the government and the tuition fees.

The academic staff members emphasise that from their point of view, all three undergraduate programmes under review receive sufficient funding for teaching and learning activities. In general, they are satisfied with the technical support. The students confirmed this positive impression and stated their satisfaction with the available resources.

ii. Collaborations

As part of its self-assessment report, a list of local and international partners was presented. The faculties collaborates with universities, government agencies, school partners, and private sector through the implementation of agreements and memorandum of agreement to support the implementation of the curriculum and *Tri Dharma* activities.

The collaborators attending the discussion during the on-site visit expressed satisfaction with their partnership with the university. This was further demonstrated by their willingness to participate in the accreditation meeting.

iii. Infrastructure and technical equipment

During the audit, the expert group visited the listed facilities in order to evaluate whether the four programmes under review are committed to supporting both practical work and research, with well-equipped facilities designed for extensive laboratory and field activities. After touring the shared facilities, the expert group divided into three teams to visit programme-specific facilities due to time constraints:

• Central Library • Teaching simulation		
Group 1	Group 2	Group 3
For BESP. 1. Microbiology 2. Botany 3. Zoology 4. Genetic and molecular Biology	For GESP: 1. Remote Sensing 2. Geographic Information System 3. Soil Geography and Hydrology.	For ICEESP 1. Animation 2. Programming 3. Networking 4. Embedded 5. Intelligent System

In their appreciation of the quality of infrastructure and equipment, the experts come to the following conclusions:

The central library offers services to UNM faculty members, administrative staff, and students. The services encompass lending physical and e-books, as well as access to scientific databases. However, during the visitation, the experts noted that there is only a very small stock of literature, which no longer appears to be up-to-date and does not have an appropriate thematic focus for the purposes of teacher education.

While the expert group confirmed that the stock is recorded electronically and can be searched online, random searches for books that are part of the basic stock of a textbook collection did not lead to any hits. Searches for journals or conference proceedings were also unsuccessful.

For instance, the experts could not find books in the field of computer science education or even in the field of computer science (nor the English language books). In addition, there were no fundamental books that should be provided to enhance student knowledge regarding programming language and tools.

Based on their assessment, the experts urgently recommend the university build up a stock of textbooks that contains at least one of the basic literature recommendations per module. They also suggest that the university could expand access to international journals and update the book collection of the library, especially with regard to Science Education literature (Biology education, Geography education and Computer Science education).

During the audit, the expert group also visited lecture rooms and laboratory rooms, both of which were in active study mode, so that the technical facilities could be observed while in use. The Microteaching laboratory was equipped with 360° cameras, a control room, a TV monitor and recording equipment to document student activities, providing a useful

resource for teaching simulations. In the lab control room, staff members were responsible for controlling the quality of the network, hardware, and software.

At the general level, the experts appreciate the existing Smart MIPA system designed for students in the Faculty of Mathematics and Natural Sciences. They also value the availability of SIMPEL (Sistem Informasi Pengajuan Judul), which supports engineering students, along with other information systems that benefit UNM students.

Informatics and Computer Engineering Education study programme

Lecture and laboratory rooms were each equipped with sufficient presentation technology. Some laboratories provided big touchscreen monitors as interactive screens. The laboratories were also equipped with sufficient computer capacity (PC level) in a contemporary state. Computers were partly used individually and partly in pairs. Rooms with computers for self-study were also available.

In the Animation lab, students present their projects in English, showcasing animations accessible to their peers through the lab's computers. The network and computers appear to function well, allowing effective collaboration. **However, regarding 1–2 VR devices, it is noticed that due to the current student-to-device ratio, the number of VR units may not be sufficient to support larger projects or final theses.**

In the Computer Networking lab, students learn computer networking using the standard tools Cisco Packet Tracer software to build a simulation of complex computer networks. The computers and network infrastructure were in good condition, supporting a productive learning environment.

In the Intelligent System lab, the computers were fully operational, with SOP on the door and students wearing lab coats during their activities, reflecting good practices in maintaining a professional lab environment.

Overall, the technical equipment appears to be satisfactory. **However, one reservation remains: if the university intends to also train teachers for use in primary school or lower levels of secondary school (age groups 6-14 years) – although, as noted under Criterion 1.1, this was denied in the further course of the audit – then technical equipment and software suitable for this age group should be available for an initial introduction to computer science; this includes, for example, approaches such as physical computing, computer science unplugged, various robots, Calliope, Raspberry Pi, Scratch, etc. This requires suitable technical equipment, but also suitably equipped rooms, which are not**

yet available. However, the expert group was able to observe students in a classroom presenting final projects that can be classified as physical computing with Arduino.

Biology Education study programme

BESP has six sub-laboratories: the Zoology Lab, Botany Lab, Microbiology Lab, Molecular Genetics Lab, Immunology Lab, and Plant Tissue Culture Lab. On average, each lab is utilized for 5 hours a day, which equates to 2 shifts per day, five days a week. Each lab accommodates an average of 9 courses per semester, and a total of 20 experiments are conducted across the labs each semester.

Each laboratory is staffed by a technician and follows standard operating procedures for all equipment, along with guidelines and records for equipment utilization. Laboratory technicians assist with practical work both in the lab and in the field, helping to set up research experiments for academic purposes. Their responsibilities include preparing materials, utilizing equipment, and performing maintenance.

The experts assess the equipment and facilities of the laboratories, as well as the safety standards in the laboratories, as sufficient to carry out the practical laboratory work related to biology education. **While the safety measures meet the required standards, there are two exceptions. Preserved animal specimens in glass containers were stored (probably in formaldehyde) in display cases. Formaldehyde is a carcinogenic hazardous substance. Preserved animal specimens stored in aldehyde must be kept tightly sealed in the containers and securely stored in a locked display collection/storage cabinet. The oxygen cylinders were stored upright in the laboratories; they should be stored upright in a well-ventilated place and secured against falling over.**

Apart from the above, the experts believe that the equipment in the biological laboratories fulfils international standards.

Geography Education study programme

During the visit, the experts toured the Remote Sensing Laboratory, which facilitates hands-on learning experiences for mandatory and elective courses within the GESP curriculum. Students were working in the lab, utilizing open-source software (Quantum GIS) for their practical exercises.

In the Geographic Information System Laboratory, students were analyzing key parameters such as rainfall, land use, slope, and soil characteristics using spatial analysis techniques. An SOP was put in place to guide laboratory activities. However, safety signage was

incorrectly positioned, which needs to be rectified to ensure compliance with safety protocols and to maintain a secure working environment.

The Hydrology Laboratory was equipped with one multiparameter device. The laboratory staff explained that while each class consists of 30 students, the maximum capacity for the lab is 10 students per batch. In the Soil Geography Laboratory, a shower station was available for decontamination, as the primary safety risk involves chemical exposure. A SOP was also implemented to govern laboratory practices. The maximum capacity of this laboratory, similar to the Hydrology Laboratory, is limited to 10 students per session.

The experts visited the local library, which offers GESP students textbooks, journals, theses, dissertations, and electronic resources on computers with internet access. The library also provides study rooms with Wi-Fi for students.

In summary, regarding the GESP facilities and laboratory infrastructure, the experts believe the programme should provide adequate access to specialized software and increase the quantity of equipment in the teaching labs (e.g., Maya, Geodetic GNNS, water quality instruments). Furthermore, they request that the safety signs be relocated according to Safety, Health, Environment, and Security standards.

Apart from the comments above, the available equipment constitutes a sustainable basis for delivering the three study programmes under review. The infrastructure is overall sufficient in terms of both quantity and quality.

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

The experts thank UNM for the provided statements and additional documentation concerning criterion 3.

(ASIIN 3.1) Gender equality – All programmes

The experts appreciate that the university has understood the issue and commend the activities mentioned in response no. 13. While UNM has increased female leadership representation (38.9%), it is recommended to establish a formal gender equality policy to ensure long-term progress.

Another strategic step is to develop and implement a formal policy on gender equality in academic leadership, which includes an institutional commitment to increasing the participation of women in strategic positions. The university will set proportional targets for women's representation in leadership.

(ASIIN 3.1) Staff development and internationally visible research – All programmes

UNM has highlighted its policies aimed at enhancing teaching and research skills. The university provides pedagogical training, workshops, and mentoring programs to align with global education trends. To encourage international engagement, 50% of lecturers in each faculty are required to participate in academic networks, with grants available to support their attendance at conferences. Furthermore, UNM offers incentives for publishing research in reputable journals, including grants and writing assistance. Research centers and international relations offices also facilitate international collaboration. The experts endorse these initiatives and suggest continued support in this area.

(ASIIN 3.1, 3.2) Third-party funding – All programmes

The experts commend UNM for strengthening partnerships with industries, government institutions, and international universities to secure joint research funding. UNM also provides support for lecturers through grant funding for international programmes and offers support for students through programs like IISMA. However, these programmes have limited quotas, and the university has not yet clarified whether it provides funding for other international student programmes. Third-party funding could be a solution for students who do not secure spots in programs like IISMA. The experts note that this remains an ongoing challenge and view further development in this area as a long-term recommendation.

(ASIIN 3.2) Library resources – All programmes

The experts appreciate that the university recognizes the weaknesses of the library and the limited access to literature. Remedial actions are planned and scheduled for implementation this year. However, the outcome will depend on how these actions are executed. Therefore, the recommendation is to implement these actions and continue monitoring future needs that may arise.

(ASIIN 3.2) Number of VR units - ICEESP

The experts recognize that the university acknowledges its weaknesses and the need for additional VR units. However, since no evidence of procurement has been provided, they continue to maintain their recommendation.

(ASIIN 3.2) Technical equipment and software - ICEESP

UNM recognizes the lack of special facilities and equipment for physical computing in elementary schools. ICEESP aims to support the provision of essential technical equipment to enhance teaching capabilities. However, the experts emphasize that providing substantial computer science education for primary teachers remains unfeasible without a clear plan and defined milestones.

(ASIIN 3.2) Safety measures – BESP

Remedial actions have been undertaken to improve laboratory safety measures. However, the experts reiterate that safety cabinets must be installed that are linked to air extractors

(e.g., to store preserved organs containing formaldehyde). During the visit, the experts noted that the jars were newly sealed with tape, but such jars belong in cabinets with exhaust ventilation or at least in separate rooms with good ventilation. These were cupboards in the labs or in an area that was only visually separated by a wall. They should therefore be stored in a separate room, if the connection to an extraction system is too difficult.

(ASIIN 3.2) Technical equipment and software - GESP

UNM has made improvements in the quantity and up-to-dateness of the software used in practical sessions. However, equipment remains limited, especially considering the annual intake of 70 to 75 students.

(ASIIN 3.2) Safety signs in laboratories – GESP

UNM has reported that several safety signs have been relocated in accordance with Safety, Health, Environment, and Security standards. For instance, the assembly point has been moved to an appropriate area. However, since no evidence of the remedial measures has been provided, the experts continue to uphold the requirement.

Considering the abovementioned points, the experts regard this criterion as partially fulfilled.

4. Transparency and documentation

Criterion 4.1 Module descriptions

Evidence:

- Self-assessment report
- Module descriptions, programmes under review
- BESP website: https://pend-biologi.fmipa.unm.ac.id/
- GESP website: https://pend-geografi.fmipa.unm.ac.id/
- ICEESP website: https://ptik.ft.unm.ac.id

Preliminary assessment and analysis of the experts:

The students, like all other stakeholders, have access to the module descriptions via the programme's websites.

After studying the module descriptions, the experts confirm that they include almost all necessary information about the persons responsible for each module, the teaching methods and workload, the awarded credit points, the intended learning outcomes, the

content, the applicability, the admission and examination requirements, and the forms of assessment.

However, the experts see the need for a revision of the module descriptions for the three programmes to address Pedagogical Content Knowledge (PCK), fill in missing information, and increase precision. This revision should ensure that each module's qualification objectives, content, and examination types are clearly and comprehensively described, in alignment with the course learning outcomes. Specifically, it should focus on the integration of of examinations, content, assignments and exercises that promote the development of students' critical thinking, written and oral communication, data collection, problem-solving, and presentation skills.

As outlined under Criterion 2, for the Biology and Geography Education programmes, the lecturers should consider international developments by including international "state of the art" literature with regard to modules, teaching, and research.

Furthermore, for the Informatics and Computer Engineering Education study programme, the auditors are missing certain foundations of computer science in the curriculum and in the module descriptions, e.g. Turing machines, computability, Church's thesis, complexity, NP-completeness, run-time order, etc. They are also missing different programming paradigms other than imperative/object-oriented programming, e.g. logic programming via Prolog, functional programming via e.g. ML, Haskell. None of these notions are mentioned in the module handbook. However, during the audit, the respective lecturers responsible for these subjects confirmed, with reference to the respective courses, that these subjects are in fact included in the curriculum. Also it became obvious during the visit that the exam types "Exam, Presentation, Case Based Learning", which are mentioned in every module, do not match the exam types that are in place. Hence, the auditors recommend a thorough editing of the module handbook so that it reflects the true contents and implementations of the modules.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-assessment report
- Sample Transcript of Records, programmes under review
- Sample Diploma/Degree Certificate, programmes under review
- Sample Diploma supplements, programmes under review

Preliminary assessment and analysis of the experts:

According to the information provided in the self-assessment report, Bachelor's students receive upon graduation a Diploma Certificate and an Academic Transcript. The issuance of Diploma certificates is the university's authority and is signed by the Rector and Dean of the Faculty of Mathematics and Natural Sciences or Faculty of Engineering.

Along with these documents, the graduates receive a Diploma Supplement, an official statement letter issued by the Faculty of Mathematics and Natural Sciences or Faculty of Engineering. It contains information about the degree programme, including programme educational objectives, Programme Learning Outcomes, acquired soft skills and student achievement in academic, co-curricular, extracurricular, or non-formal education.

The ASIIN experts are provided with samples of these documents. They confirm that the students of the degree programmes under review are awarded a Diploma Certificate, as well as a Transcript of Records and a Diploma Supplement. The Transcript of Records lists all the courses the graduate has completed, the achieved credits, grades, cumulative GPA, and the thesis title.

Criterion 4.3 Relevant rules

Evidence:

- Self-assessment report
- University website: https://unm.ac.id/academic-regulation/; https://unm.ac.id/statute/
- BESP website: https://pend-biologi.fmipa.unm.ac.id/
- GESP website: https://pend-geografi.fmipa.unm.ac.id/
- ICEESP website: https://ptik.ft.unm.ac.
- All relevant regulations as appendices to the self-assessment report.
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The auditors confirm that the rights and duties of both UNM and the students are clearly defined and binding. All rules and regulations are published on the university's website and the students receive the course material at the beginning of each semester.

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

The experts thank UNM for the provided statements and additional documentation concerning criterion 4.

(ASIIN 4.1) Module descriptions – All programmes

ICEESP
According to response no. 21, and after checking a random sample of ICEESP, the experts confirm that the requested adjustments concerning PCK have been integrated. However, they note that program-specific comments outlined in the accreditation report have not been taken into account. The experts, therefore, reiterate their request for the university to strengthen the coverage of fundamental theoretical computer science concepts (e.g., Turing machines, computability, Church's thesis, complexity, NP-completeness, run-time order) within the curriculum. This will help ensure better alignment with the Association for Computing Machinery (ACM) curriculum standards. Alternatively, the university needs to make visible in the module handbook where these subjects are taught.

BESP and GESP
The experts note that the module handbooks have been slightly revised but PCK has hardly been taken into account. Please, check the following link as an example: https://www.biodidaktik.phil.fau.de/files/2024/10/Modulhandbuch-Biologiedidaktik-WS-2425_aktuell.pdf

Furthermore, most of the references in the module description need to be updated.

In connection with criterion 1.5, the experts also ask UNM to pay attention to the total amount of ECTS per module, which is unclear in terms of the calculation of CSU in ECTS (e.g., 2 CSU (2,64 ECTS); ECTS = Total workload : 30 hours = 91,2 : 30 = 3).

Considering the abovementioned points, the experts regard this criterion as partially fulfilled.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-assessment report

- Center for Education Quality Assurance (Pusat Pusat Penjaminan Mutu Pendidikan) Website: https://lp2mp.unm.ac.id/pusat-penjaminan-mutu-pendidikan-download/
- Discussions during the audit.

Preliminary assessment and analysis of the experts:

UNM quality management system has been institutionalised in compliance with government regulations and undergoes regular evaluation and updating. The system incorporates elements and mechanisms of both internal and external quality assurance. Quality is overseen internally by dedicated quality assurance teams/units across the university (Quality Assurance Center-PPM), faculty (Quality Assurance Unit-UPM) and programme (Quality Assurance Group-GPM) levels.

The quality assurance teams at the faculty level (UPM) is responsible for creating Standard Operating Procedures (SOP) and Quality Assurance Standards (SPM). Their duties include developing assessment instruments, processing data, and making recommendations based on their findings. UPM operates under guidelines that outline the roles, authorities, and responsibilities related to quality assurance for faculty, students, and curriculum, as well as for overall academic quality management.

Quality standards are defined in a document outlining the expectations for study programmes, departments, faculties, and the university. These standards cover aspects, such as graduate competency, learning content, processes, assessments, and the qualifications of lecturers and staff. Additionally, they address infrastructure, management, financing, and student standards. UPM communicates these standards in collaboration with GPM to the academic community to guide their implementation.

To measure adherence to these quality standards, students complete evaluation instruments each semester. PPM (university level layer) conducts a Lecturer Evaluation by Students (EDOM) at the end of each semester to assess lecturer performance in the learning process. This evaluation collects data on various aspects, including lecturer attendance, availability of syllabi and lesson plans, lecture materials, assessment methods, learning media, and learning strategies. The results are shared with the respective lecturers and communicated to the faculty leadership for further consideration.

The experts appreciate that learning assessments consider different angles and perspectives. However, as discussed under Criterion 1.5, one important aspect appears to be missing: a question that inquires about student workload. The team believes this information should be included in the ongoing development of the programmes under review.

During the audit, the experts asked whether evaluation results are communicated to students. In response, it was explained that the university uses the academic information system, SIA, to inform students about these results. It was also clarified that there are regular meetings where student representatives discuss plans with the university's leadership. During these meetings, the university explains the steps they intend to take based on the feedback received.

Additional channels for providing feedback include the Department Student Association and the Box of Aspirations. However, the experts noted that each department has a Quality Assurance Group responsible for ensuring quality at the programme level, and they believe that students should have a voice in this Quality Assurance Group.

Measurement of the satisfaction of lecturers and education personnel with the management and development services is also carried out using an online satisfaction instrument.

Moreover, annual tracer studies are conducted to gather information about graduates. Lecturers and supporting staff also evaluate the quality of the study programme services in the learning process on an annual basis. The insights from these surveys are utilised to drive continuous improvement at both the departmental and programme levels.

In discussion with the experts, the alumni confirmed that tracer studies exist, and the school partners also confirmed that the university is open to receiving feedback about new developments and trends that could enhance the employability of its graduates.

Together with internal quality assurance mechanisms, recurring external quality assurance exercises at UNM relate to the legal obligation to submit every degree programme for accreditation in addition to the compulsory institutional accreditation. The study programmes currently under review have received grades of "A" or "Excellent" from the National Accreditation Body for Higher Education (BAN-PT). Accreditation for these study programmes is valid for a period of five years.

Overall, the expert panel holds a positive view of the quality assurance system currently in place. Quality management is a priority at the university, and several structures have been established to support it. The panel notes that UNM, the Faculty of Mathematics and Natural Sciences and the Faculty of Engineering regularly conduct surveys to gather feedback from students, stakeholders, and staff. There is a positive, open culture that embraces change and strives for continuous improvement at all levels.

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

The experts thank UNM for the provided statements and additional documentation concerning criterion 5.

(ASIIN 5) Student workload monitoring – All programmes

Addressed under criterion 1.5.

(ASIIN 5) Student voice in Quality Assurance Group – All programmes

According to response no. 25, UNM has already implemented structured student participation in quality assurance, including annual meetings and student representation in decision-making bodies. The university has integrated a solution that can be systematically monitored and confirms that students are involved through the IQA system, the EDOM survey, and regular meetings between students and management. The experts are satisfied with the measures currenty in place to consider the student voice

Considering the abovementioned points, the experts regard this criterion as fulfilled.

D Additional Documents

Before preparing their final assessment, the panel asks 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:

None

E Comment of the Higher Education Institution (07.02.2025)

The institution provided the following additional information:

	Comments From ASIIN Experts	Programme	Explanations from the University (BESP, GESP, ICEESP)
1	During the on-site visit, the experts engaged in a discussion with the programme coordinators regarding the PLOs and the underlying idea of competence in the programmes being reviewed. While PLOs are formulated basically clear, plausible, and comprehensible, the experts noted that a clear definition of competence, as well as its connection to related concepts such as problem-solving, critical thinking, problem-based learning, inquiry based learning, among others, is absent from the Curriculum Document. The programme coordinators indicated that the concept of competence includes four key aspects: Attitude, Knowledge, General Skills, and Special Skills. These are the areas students are expected to develop, following the guidelines outlined in the Indonesian National Qualification Framework.	All	In the study program curriculum, competency is defined as a set of Attitudes, Knowledge, General Skills, and Special Skills that show student achievement from their learning outcomes at the end of the higher education program. This definition is based on the Guidelines of the Ministry of Education and Culture, Research and Technology (2024) concerning the Curriculum in Higher Education. A complete explanation for each type of competency is as follows: 1. **Attitude** = Is correct and cultured behavior as a result of internalization and actualization of values and norms reflected in spiritual and social life through the learning process, student work experience, research and/or community service related to learning 2. **Knowledge** = Is mastery of concepts, theories, methods, and/or philosophies of a particular field of science systematically obtained through reasoning in the learning process, student work

	While the experts acknowledge these four aspects, they emphasize the need for the programmes to include a more comprehensive explanation of the competence concept within the framework of science education. They note that this needs to incorporate relevant references to support the understanding of competence in this context.		experience, research and/or community service related to learning. 3. **General Skills** = Are general work skills that must be possessed by every graduate in order to ensure equality of graduate abilities according to the level of the program and type of higher education; 4. **Special Skills** = Are special work skills that must be possessed by every graduate according to the field of study program science. The four competencies above are mostly related to the concept of problem solving and critical thinking, especially for General Skills and Special Skills competencies. In the Biology Education Study Program Curriculum Document (https://pend-biologi.fmipa.unm.ac.id/curriculum/), Page 16. Section 5.2, Table 2. learning outcomes of the study program (General Skills and Special Skills). GESP curriculum https://pend-geografi.fmipa.unm.ac.id/en/kurikulum/ page 26 In addition, in the higher education curriculum in Indonesia, learning models/approaches such as problem-based learning and inquiry based learning are highly emphasized as references for lecturers in implementing lectures. These learning models/approaches can be seen

			in the Module Handbook, (Please see the module handbook of Learning Theories (https://bit.ly/asiinbesp1) in the section of type of teaching), and PLOs for ICEESP https://bit.ly/iceespplo.
2	Regarding the documents available to the public, the experts sought further clarification from the programme coordinators regarding the stated focus of the programmes. The experts found the information to be unclear, with some documents indicating that the programmes also prepare graduates for primary-level teaching (see graduate profile in the next section). However, the programme coordinators clarified that the focus of all three programmes is on preparing graduates for teaching at the secondary and senior high school levels. To ensure clarity and avoid any potential misunderstanding for prospective students, and other stakeholders, the experts request that the university revise all publicly available documents. These have to accurately state that the programmes are designed for teaching education at levels above the primary school level.	ALL	The document has been revised after the field assessment process by ASIIN in December 2024. For BESP and GESP, the Curriculum Document has accurately stated that the three Study programs focus on preparing prospective teachers to teach at the secondary and senior high school levels. For ICEESP, according to the current Indonesian national curriculum for primary and secondary education, Informatics is only taught at the junior secondary school (SMP) and senior secondary school (SMA/SMK) levels. Therefore, our program is specifically designed to prepare graduates to teach at these levels. However, the Indonesian government, through the Ministry of Primary and Secondary Education, has plans to introduce Computational Thinking into primary education, although its implementation has not yet been realized. In anticipation of this, we equip our students with relevant pedagogical knowledge that can be applied at various levels of education. This is achieved through courses such as Lesson Planning, Educational Psychology, and Student Development, which provide a foundation for

			understanding and teaching students of different age groups.
3	In connection to this, the experts specifically focused on the Informatics and Computer Engineering Education study programme, which sets expectations for careers in the ICT field within companies. Based on insights from stakeholders, however, it became clear that the programme's primary emphasis is on preparing graduates for roles in educational settings. In light of this discussion and to better align expectations regarding career outcomes, the experts believe that the Informatics and Computer Engineering Education study programme should make clear that graduates are educated to become teachers or have jobs in educational areas. The experts also recommend that the university establish a distinct pathway for students who aspire to become Computer Scientists, providing them with the specialized knowledge and skills needed for careers in the industry.	ICEESP	The Universitas Negeri Makassar already offers a dedicated Computer Engineering programme, which specifically prepares graduates for careers in the ICT industry. Additionally, the Universitas Negeri Makassar has taken steps to establish a Computer Science programme, which has been approved by the university senate. This new programme will provide a distinct pathway for students who aspire to become Computer Scientists, equipping them with specialized knowledge and skills aligned with industry needs.
4	However, the experts propose a revised approach to planning, implementing, and evaluating the curriculum, as further detailed in Criterion 1.3, with a specific	All	As addressed in our previous response, we have revised the Curriculum Document to provide a more comprehensive explanation of the competence concept,

	emphasis on education. As mentioned in section i., it is essential to have a clear definition of competence and to understand its relationship to related concepts such as problem-solving, critical thinking, problem-based learning, and inquiry-based learning, among others.		particularly in relation to problem-solving, critical thinking, problem-based learning, and inquiry-based learning. Additionally, we have refined our Programme Learning Outcomes (PLOs) to better align with the framework of science education and informatics education, ensuring clarity and coherence in curriculum planning, implementation, and evaluation.
5	Upon reviewing the curriculum content for both the Biology Education and Geography Education study programmes, the experts noted that content knowledge within the curricula is very high, as well as it is the workload. For example, for Biology Education, a wide variety of specialized courses on diverse biological subjects is offered. Students demonstrate a remarkable level of scientific expertise in numerous biological domains, including botany, zoology, biotechnology, microbiology, molecular biology and cell biology. To better understand this emphasis, the experts sought clarification from the programme coordinators, who explained that the programmes aim to provide future teachers with a solid foundation in science. This rationale explains the decision to expand the body of knowledge covered in the curriculum.	BESP and GESP	Currently, the BESP and GESP curriculum is in the process of being evaluated and revised at the curriculum workshop in accordance with ASIIN's input on strengthening Pedagogical Content Knowledge in the curriculum. BESP and GESP agreed to make courses Education around 60% of all courses/modules.

	However, in the context of educational programmes, the experts believe there should be a heightened focus on Pedagogical Content Knowledge, as this aspect appears to be underdeveloped and requires more explicit attention. An important recommendation is, therefore, to reconsider the amount of content concerning Content Knowledge and Pedagogical Content Knowledge (PCK). In order to alleviate the workload, the modules should be streamlined and the emphasis be placed on Content Knowledge in accordance with the school curriculum, while also prioritising PCK.		
6	Aligned with the programmes' aspirations to play a more prominent role on the international stage, the current English language proficiency of students becomes a critical area for development. To support the internationalization goals of the three programmes, it is recommended to further enhance students' English language skills. In the experts' view, the university could consider the implementation of preparation courses tailored specifically to improve English skills. These courses would be particularly beneficial for students intending to participate in study abroad programmes such as IISMA, and other student exchange opportunities.	All	Currently, the Universitas Negeri Makassar has required students to take English language training during their studies at the University. In order for the training process to be binding, students will receive a CERTIFICATE when they are able to achieve the English language score set by the University. In the context outside the learning process, students are encouraged to communicate in English in certain areas on campus, and the process of the learning process, the presentation with bilingualism during lectures. Students are also encouraged to take part in international student exchanges, international conferences and will join organizations such as ERASMUS and the German

	The experts emphasize that it is very useful for students to spend some time abroad during their Bachelor's studies to get to know other educational systems and enhance their job opportunities. To support this, the experts recommend that the three programmes provide more information and support for internationalization efforts aimed at expanding student mobility. They also see an opportunity to initiate additional international exchange programmes, which would encourage cooperation with international schools. This could lead to more available placements and scholarship opportunities for students. Organizations such as ERASMUS and the German Academic Exchange Council (DAAD) offer funding for international study, further facilitating these initiatives.		Academic Exchange Council (DAAD) offering funding for international studies.
7	However, they emphasized that the programmes should place greater emphasis on implementing a structured approach to the curriculum that is grounded in effective educational methods and consistent with the specific learning objectives students are expected to achieve. This involves ensuring the content is thoughtfully tailored, rather than relying on generic or unadapted information.	All	The current strategy implemented by BESP, GESP, and ICEESP is to implement an approach that begins with determining the expected learning outcomes, then developing appropriate evaluation methods, and finally designing teaching materials and teaching strategies that support the achievement of these goals. In addition, module descriptions are clarified by detailing the specific competencies to be developed in each course, so that learning content is more focused and relevant and does not rely on general or less contextual information.

	The experts believe that the programmes should ensure that planning, implementing and evaluating the curriculum are consistently guided by educational principles and directly aligned with the goals of the learning outcomes. To ensure this alignment, it is essential that the module description be clarified and updated, as discussed further under criterion 4.1.		BESP, GESP, and ICEESP also adopt the Outcome-Based Education (OBE) principle that emphasizes the achievement of concrete skills, by ensuring that the curriculum is periodically evaluated to adjust to developments in science and professional needs in related fields. By ensuring that curriculum planning and implementation are always guided by clear pedagogical principles, the program will be more effective in producing competent graduates who are ready to face academic and professional challenges in the future. Sample module examples on BESP Learning Theories (https://bit.ly/asiinbesp1)
8	Upon analyzing the curricular structure, the experts observed that the semester workload is composed of several modules, most with a credit load ranging from 2 to 3 CSU, with the exception of Community Service and Field Practice (4 CSU) and Thesis (6 CSU). This structure contributes to a very high exam load. To create a more balanced and manageable workload, the experts believe that the programmes should try to reduce the number of modules by combining them to enhance the comprehension of the subjects and decrease the number of exams.	All	One of the main approaches is to combine closely related courses so that the number of courses is reduced without sacrificing the essence of learning. This step will reduce the number of exams, so that students can focus more on understanding the material in depth. The evaluation system is also carried out more diversely by not only writing, observation, and oral, but also using a project-based approach (thematic) or final assignments based on case studies, replacing too many written exams. Evaluations like this better reflect the needs of the world

			of work, where analytical and problem-solving skills are prioritized. Another approach applied is the preparation of a competency-based curriculum, where courses are designed based on the skills to be achieved, not only based on the number of credits charged per semester. The use of technology in learning, such as the blended learning method (https://syam-ok.unm.ac.id/) which combines online and face-to-face systems, can also help reduce exam pressure. With more flexible access to materials, students can study independently and adjust their learning rhythm better. With this combination of solutions, it is hoped that the academic workload will be more balanced, improve student understanding, and create a more effective and applicable learning experience.
9	The experts reviewed the information provided as confirmation that student workload is corroborated by the institution. However, they could not find clear evidence and data confirming that instruments are in place to regularly monitor whether the credits awarded for each module correspond to the actual student workload. Consequently, the panel asks that the university establish a formal mechanism to systematically monitor and assess the actual workload of students (e.g., using questionnaires) and adjust the awarded ECTS points accordingly. Displaying students' workload in ECTS	All	After the ASIIN field assessment in December 2024, One step that can be taken is to develop and implement data-based evaluation instruments, such as questionnaires that are distributed periodically to students. This questionnaire is designed to measure students' actual workload in each module, covering aspects such as time spent on lectures, assignments, projects, and exam preparation. The data collected can be analyzed to assess the suitability between the number of credits awarded and the actual academic load. The instrument for measuring student workload is an instrument validated

	points is an essential step in facilitating academic mobility (according to European standards, 30 ECTS points should be awarded per semester).		by the University's quality assurance to be integrated into the existing evaluation system (EDOM = https://edom.unm.ac.id/login.html and Equality =. https://equality.unm.ac.id/).
10	The experts request that the university clarify the reasons behind students exceeding the anticipated length of study. Additionally, they seek information about the measures currently in place to support students in completing the programme within the prescribed duration.	All	There are several causes of the slow study period of students at Universitas Negeri Makassar, namely; 1. The workload of students is too high. 2. The curriculum is not flexible enough 3. The role of academic advisors has not been optimized Therefore, several initiatives have been implemented. The curriculum has been made more flexible, combining programs such as Merdeka Belajar and thesis based on publications, which provide students with more efficient study options. In addition, the main follow-up step is to revise the curriculum regarding the number of credits and courses in each BESP, GESP and ICEESP curriculum, so that student workloads are not excessive. An academic advisor training program has been introduced to enhance the role of academic advisor lecturers in guiding students effectively. Furthermore, counseling services at the department and faculty levels are now available to support students who face psychological challenges that can hinder their academic progress. The next step is to make a monthly evaluation plan for students who have passed the 8 semester (4 years) study

			period. This evaluation is coordinated by the faculty leader (Vice Dean for Academic Affairs) together with the head of the study program. The evaluation is based on data on the progress of completing the student's final assignment which includes 5 categories (thesis writing), 1) not yet a proposal, 2) already having a proposal seminar, 3) currently doing research, 4) not yet having a results seminar, 5) not yet having a closing exam.
11	The expert panel acknowledges the transparency of the examination system. However, in line with the assessment in Criterion 1.5, they note that the number of exams is generally very high due to the way the curriculum is structured. This results in an increased workload for both students and lecturers (more details can be found under Criterion 1.5).	All	To address the problem of the high number of exams due to the existing curriculum structure, the Universitas Negeri Makassar has conducted a comprehensive evaluation of the academic assessment system to ensure a balance between student workload and the effectiveness of learning evaluation. The steps taken are to reduce the number of exams by adopting more diverse and competency-based assessment methods, such as formative assessments, research-based projects, case studies, presentations, and group assignments that allow students to demonstrate their understanding in a more applicable way. By replacing some written exams with alternative assessment methods, students can focus more on understanding the material in depth and reduce excessive academic pressure. The main strategy taken by the Universitas Negeri Makassar is to optimize the curriculum integration system by combining closely related courses so that the

			number of exams can be reduced without reducing the quality of learning. This step can help balance the distribution of evaluations in one semester, so that students do not have to face many exams in a short time. Furthermore, the examination system can be improved by adjusting the evaluation weight based on the principle of continuous assessment.
12	The expert group examined a selection of final theses and determined that they were of an appropriate academic level. However, for the Biology Education and Geography Education programmes, the experts noted that students mainly reference local literature. They recommend that the lecturers guide students to also explore current international research to broaden their perspectives (more under Criterion 4.1).	BESP and GESP	Currently, Universitas Negeri Makassar and especially BESP and GESP have strengthened the role of supervisors in guiding students to use wider references, including reputable international journals, global academic books, and research results from international institutions. Lecturers have integrated international literature into the required reading list, as well as provided training on valid scientific source search techniques through global academic databases such as Scopus, Web of Science, and SpringerLink. In addition, BESP and GESP have increased student access to international academic resources by subscribing to global scientific journals and providing training workshops on the use of academic repositories and scientific reference management using software such as Zotero or Mendeley. Furthermore, Universitas Negeri Makassar can encourage students to write and publish scientific articles

			in international journals as part of their thesis preparation with a minimum of 60% international literature. By providing assistance in academic writing based on international standards, students will be more accustomed to using global references and applying a broader perspective in their research. The implementation of these steps will ensure that students not only understand the local context in their research but are also able to contribute to global academic discourse, so that the quality of their thesis and the competitiveness of graduates can be significantly improved.
13	The experts also inquired about gender equality in staff recruitment. The representatives confirmed that there are no gender-related issues at UNM and that both male and female candidates are evaluated equally, with appointments made based on merit and competence. While appreciating this approach, the experts note, based on the self-assessment report, that, with the exception of one position, all deans of the ten faculties are male. When viewed in conjunction with the Chancellor, this results in a male quota exceeding 90% in these leadership roles. There is potential for the university to further progress by developing and implementing a formal policy on equal opportunities for	All	The proportion of women in senior leadership positions at our University is higher than 10%, with 38.9% of these roles currently held by women. Specifically, 1 in 4 Vice Chancellors is a woman (Vice Chancellor for Academic Affairs), 2 in 10 Deans are women (Dean of the Faculty of Sport and Health Sciences, and Dean of the Faculty of Medicine), and 1 in 3 Heads of Bureaus are women, as well as 3 in 4 are heads of Academic Service Units at Universitas Negeri Makassar. These figures reflect Universitas Negeri Makassar's ongoing commitment to ensuring equal opportunities in leadership. Universitas Negeri Makassar maintains a merit-based selection process, where male and female candidates are evaluated solely on their competencies and qualifications. However, Universitas Negeri Makassar

	women, with a particular focus on the representation of women in senior leadership positions.		acknowledges that leadership at the dean and rector levels is still dominated by men. To address this, Universitas Negeri Makassar is committed to monitoring and encouraging greater representation of women in leadership roles. In addition, we have taken concrete steps to support gender equality, including organizing the National Symposium on "Creating an Inclusive Campus through Gender Mainstreaming Strategies," which serves as a platform to foster a more balanced and inclusive academic environment. Currently, to ensure gender equality in staff recruitment and promotion, UNM currently has a Gender and Child Studies Center at the Research and Community Service Institute. Another strategic step is to develop and implement a formal policy on gender equality in academic leadership, which includes an institutional commitment to increasing the participation of women in strategic positions. The University will set proportional targets for women's representation in leadership.
14	The team appreciates the initiatives currently available. However, they believe that for the three study programmes these efforts should be strengthened. The development of academic staff should be achieved through more opportunities to improve their teaching skills and to spend time abroad to attend conferences or	All	To strengthen the development of academic staff (lecturers) in the three evaluated study programs, Universitas Negeri Makassar has made a more proactive policy in improving the teaching competence and research capacity of lecturers. One strategic step is to expand opportunities for lecturers to participate in

	workshops. The university should also provide a system to foster internationally visible research by publishing in high-level international journals, participating in international conferences worldwide and visiting international universities as guest lecturers.		modern pedagogical training to improve the effectiveness of their teaching methods. The university has held regular workshops on innovative teaching techniques, technology integration in learning, and research-based approaches in teaching. In addition, mentoring programs and tiered professional training have been implemented to ensure that academic staff continue to develop their skills in line with global education trends. In addition, the University has required 50% of Lecturers in each Faculty to be more active in international academic networks by providing grant funds to attend international conferences and workshops, either as participants or speakers. This participation not only enriches the academic insights of lecturers, but also expands their networks with the global scientific community, which can open up opportunities for cross-country research collaboration. The University can collaborate with overseas institutions to initiate academic mobility programs, such as guest lecturers, and academic exchanges, to enable academic staff to gain broader international experience. To improve the quality and visibility of research, the University has provided a system of incentives and support for lecturers in publishing their scientific works

			in reputable international journals. These incentives can be in the form of research grants, academic writing assistance, and assistance in publication so that their scientific works meet global standards. In addition, the presence of research centers and international relations at the University serves as a forum for lecturers to collaborate with academics from various countries, so that the resulting research has a wider impact.
15	In connection with this and Criterion 3.2 below, the experts note that third-party funding is low and the possibilities of increasing this funding should be examined. This would make it possible to invite more foreign researchers to UNM.	All	One of the main strategy is that UNM has strengthened strategic partnerships with the industrial sector, companies, and government institutions to obtain funding for research that has an applicative impact in the real world. Industry-based research programs and technological innovations have been developed to attract external partners to invest in research that can be implemented in the business world and public policy. In addition, a strategic step taken is to strengthen the University's capacity to submit research grant proposals to national and international funding institutions, such as the Ministry of Higher Education, Science, and Technology (Kemdiktisaintek), the Education Fund Management Institute (LPDP), and other donor institutions. Universitas Negeri Makassar currently provides intensive training for lecturers and researchers to improve their skills in compiling competitive proposals

			and building a special team responsible for seeking and managing funding opportunities from third parties. An interesting effort currently being undertaken by UNM is developing a joint research program with foreign institutions, where funding comes from a joint funding scheme between Universitas Negeri Makassar and partner Universities.
16	Based on their assessment, the experts urgently recommend the university build up a stock of textbooks that contains at least one of the basic literature recommendations per module. They also suggest that the university could expand access to international journals and update the book collection of the library, especially with regard to Science Education literature (Biology education, Geography education and Computer Science)	All	Universitas Negeri Makassar recognizes the limited resources currently available in the Central Library and acknowledges the concerns raised in the assessment. The University remains committed to improving the quality and accessibility of academic resources to support teaching and research activities. As noted by the Head of the Library during a discussion with one of the assessors regarding access to international journals, efforts have been made to address these limitations through strategic acquisitions. The Central Library has submitted a formal acquisition plan for international journal subscriptions, including access to Science Direct (Scopus), Web of Science, and SpringerLink, as well as the acquisition of e-books from leading publishers such as Wiley. These initiatives reflect the University's dedication to ensuring that faculty and students have access to high-quality, up-to-date academic literature.

			Furthermore, the planned acquisitions will specifically address literature needs in Science Education, including Biology Education, Geography Education, and Computer Science Education, which were identified as areas in need of improvement. The University understands the critical role that comprehensive and relevant academic resources play in fostering a strong learning and research environment. Therefore, this initiative has been prioritized, with its implementation scheduled for 2025. The University remains committed to continuously evaluating and expanding its library collections to align with academic and industry developments, ensuring that students and faculty members are well-equipped with the resources necessary for academic excellence.
17	However, regarding 1–2 VR devices, it is noticed that due to the current student-to-device ratio, the number of VR units may not be sufficient to support larger projects or final theses.	ICEESP	ICEESP recognizes that the number of VR devices currently available may not be sufficient to support large projects or final projects, given the ratio of students to devices. Therefore, ICEESP plans to gradually increase the number of VR devices, especially to support the growing academic needs. In addition, ICEESP will also explore the possibility of cooperation with external parties or technology providers to obtain additional devices, to ensure that all students can make maximum use of this technology in completing their research projects and final projects. ICEESP is committed to continuously

			updating existing facilities and resources to support academic development at the University.
18	However, one reservation remains: if the university intends to also train teachers for use in primary school or lower levels of secondary school (age groups 6-14 years) – although, as noted under Criterion 1.1, this was denied in the further course of the audit – then technical equipment and software suitable for this age group should be available for an initial introduction to computer science; this includes, for example, approaches such as physical computing, computer science unplugged, various robots, Calliope, Raspberry Pi, Scratch, etc. This requires suitable technical equipment, but also suitably equipped rooms, which are not yet available. However, the expert group was able to observe students in a classroom presenting final projects that can be classified as physical computing with Arduino.	ICEESP	Although currently special facilities and equipment for physical computing at the elementary school level are still limited, ICEESP are committed to continuing to support the provision of the necessary technical equipment so that students can be more optimal in carrying out their teaching duties in the future.
19	While the safety measures meet the required standards, there are two exceptions. Preserved animal specimens in glass containers were stored (probably in formaldehyde) in display cases. Formaldehyde is a carcinogenic hazardous substance. Preserved animal specimens stored in aldehyde must be kept tightly sealed in the containers and securely stored in a locked display collection/storage cabinet. The oxygen cylinders were stored upright in the laboratories; they should be stored	BESP	Stricter safety measures have been taken in accordance with occupational safety and health standards. First, animal specimens preserved in formaldehyde must be stored in a completely sealed container to prevent leakage and evaporation of hazardous substances. To be completely sealed, the container lid must be isolated so as not to produce odors. In addition, the containers have been placed in locked storage cabinets or display cases to limit exposure to the surrounding environment and

	upright in a well- ventilated place and secured against falling over.		prevent unauthorized access. The use of personal protective equipment (PPE), such as gloves and masks, is also required when handling these specimens to reduce the risk of exposure to carcinogenic formaldehyde. Second, oxygen cylinders in the laboratory have been stored in an upright position in a well-ventilated area to prevent gas accumulation that can increase the risk of fire or explosion. These cylinders have been secured with supports or chains to prevent them from falling or tipping over, which could cause leakage or damage to the cylinder. In addition, regular inspections of the condition of the oxygen cylinders and their storage systems are carried out to ensure compliance with applicable safety standards. Proof of treatment link https://bit.ly/asiinbesp2
20	In summary, regarding the GESP facilities and laboratory infrastructure, the experts believe the programme should provide adequate access to specialized software and increase the quantity of equipment in the teaching labs (e.g., Maya, Geodetic GNNS, water quality instruments). Furthermore, they request that the safety	GESP	For the software in the Geographic Information System Laboratory, we already order the ArcGIS Licensed Software for Laboratory. The specification: Educational Academic Departmental Medium Term Software Package - 1 Prov. file with 50 User Type for 1 Year Period Include:

	signs be relocated according to Safety, Health, Environment, and Security standards.		- ArcGIS Online Professional Plus (formerly Advanced) User Type Annual Subscription- ArcGIS Pro Extensions: 3D Analyst, Data Reviewer, Geostatistical Analyst, Network Analyst, Publisher, Schematics, Spatial Analyst, Tracking Analyst, Workflow Manager, Image Analyst, ArcGIS LocateXT- ArcGIS Online (ArcGIS Online Service Credits 25.000), ArcGIS Premium Application, & ArcGIS Enterprise Advanced (1 pkg). **Geodetic GNNS:** For Geodetic GNNS, we have one unit Geodetic GNNS for surveying and mapping **Water Quality Instruments:** In the hydrology laboratory, we have Turbidity Meter and TSS Analyzer Total Suspended Solids Meter for Water Quality Instruments. The safety signs be relocated according to Safety, Health, Environment, and Security standards. Several safety signs have been relocated according to Safety, Health, Environment, and Security standards. For example, the assembly point has been moved and placed to proper area.

21	However, the experts see the need for a revision of the module descriptions for the three programmes to address Pedagogical Content Knowledge (PCK), fill in missing information, and increase precision. This revision should ensure that each module's qualification objectives, content, and examination types are clearly and comprehensively described, in alignment with the course learning outcomes. Specifically, it should focus on the integration of of examinations, content, assignments and exercises that promote the development of students' critical thinking, written and oral communication, data collection, problem-solving, and presentation skills.	All	Comprehensive and standard-based pedagogical updates have been made to accommodate Pedagogical Content Knowledge (PCK) and to supplement missing information. Revisions were carried out systematically by ensuring that each module has clear qualification objectives, content that is in accordance with scientific developments, and types of exams that are relevant to the learning outcomes set. In addition, module descriptions are made explicit to explain the relationship between lecture material, evaluation methods, and skills expected to develop in students. In particular, the integration of exams, assignments, and exercises is designed to stimulate critical thinking, improve written and oral communication skills, and strengthen data collection, problem solving, and academic presentation skills. Sample examples https://bit.ly/iceesp1 and https://bit.ly/bespbio1
22	As outlined under Criterion 2, for the Biology and Geography Education programmes, the lecturers should consider international developments by including	BESP and GESP	Currently, BESP and GESP have conducted regular reviews of academic journals, the latest textbooks, and publications from influential research institutions and

	international “state of the art" literature with regard to modules, teaching, and research.		global organizations in the fields of Biology and Geography. In addition, in compiling the RPS, lecturers have ensured that the references used reflect the latest developments in science and technology, so that students can gain broader and deeper insights. To support this implementation, the University has provided access to international academic databases such as Scopus, Web of Science, and SpringerLink to facilitate up-to-date data-based teaching and research. Furthermore, collaboration with academics from overseas universities through seminars, workshops, or joint research projects is carried out to enrich the global perspective in learning.
23	Furthermore, for the Informatics and Computer Engineering Education study programme, the auditors are missing certain foundations of computer science in the curriculum and in the module descriptions, e.g. Turing machines, computability, Church’s thesis, complexity, NP-completeness, run-time order, etc. They are also missing different programming paradigms other than imperative/object-oriented programming, e.g. logic programming via Prolog, functional programming via e.g. ML, Haskell. None of these notions are mentioned in the module handbook. However, during the audit, the respective lecturers responsible for these subjects	ICEESP	The module handbook has been revised based on the feedback provided. The module handbook link is attached. https://bit.ly/iceesp1

	confirmed, with reference to the respective courses, that these subjects are in fact included in the curriculum. Also it became obvious during the visit that the exam types "Exam, Presentation, Case Based Learning", which are mentioned in every module, do not match the exam types that are in place. Hence, the auditors recommend a thorough editing of the module handbook so that it reflects the true contents and implementations of the modules.		
24	The experts appreciate that learning assessments consider different angles and perspectives. However, as discussed under Criterion 1.5, one important aspect appears to be missing: a question that inquires about student workload. The team believes this information should be included in the ongoing development of the programmes under review.	All	One of the solutions implemented is to create a survey instrument or questionnaire that specifically measures students' perceptions of academic workload (the student workload monitoring and evaluation instrument can be accessed via https://bit.ly/MonevStudentsWorkLoad) and we have socialized it to students to be filled in on the quality assurance unit website (https://penjaminanmutu.fmipa.unm.ac.id/). The data collected from this survey can be analyzed to identify imbalances in the distribution of workload in each module, thus allowing improvements in curriculum planning and teaching methods.
25	Additional channels for providing feedback include the Department Student Association and the Box of Aspirations. However, the experts noted that each department has a Quality Assurance Group responsible for ensuring quality at the programme level, and they	All	Currently, quality assurance units at the Faculty and University levels always involve students including class leaders and student organizations in the monitoring process of educational quality assurance, especially those related to the teaching and learning process. The

	believe that students should have a voice in this Quality Assurance Group.		quality assurance unit at the study program level always coordinates with the class leader before the questionnaire distribution process. The class leader always coordinates and assists the quality assurance process in the process of distributing and filling out the instruments by all students. After the input provided by all students is followed up by the faculty leadership, student representatives are invited to the annual meeting, namely the Management Review Meeting. In addition, quality assurance will also determine student representatives in the Quality Assurance Group (GPM) whose task is to convey aspirations, feedback, and student perspectives regarding the quality of learning, academic facilities, and study program policies originating from the Departmental Student Association (HMJ). The selection of these representatives can be carried out through a transparent mechanism, such as selection by or recommendations from related student organizations. Student participation in Quality Assurance is supported by a clear communication system, such as regular meetings, discussion forums, and direct access to the aspiration box and academic evaluation results.

F Summary: Expert recommendations (21.02.2025)

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Bachelor Biology Education	With requirements for one year	30.09.2030
Bachelor Geography Education	With requirements for one year	30.09.2030
Bachelor Informatics and Computer Engineering Education	With requirements for one year	30.09.2030

Requirements

For all degree programmes

A 1. (ASIIN 1.5) Establish a formal mechanism to systematically monitor and assess the actual workload of students and adjust the awarded ECTS points accordingly.

For the Bachelor's degree programmes Biology Education and Geography Education

A 2. (ASIIN 1.1) Ensure that the curriculum document includes information on the competence concept within the framework of science education, including references.

A 3. (ASIIN 4.1) Revise the module descriptions to address PCK, fill in missing information, and increase precision, ensuring that each module's qualification objectives and content and exam types are accurately and comprehensively described in alignment with the course learning outcomes.

For the Bachelor's degree programme Biology Education

A 4. (ASIIN 3.2) Ensure that safety cabinets are linked to air extractors or installed in separate rooms with good ventilation.

For the Bachelor's degree programme Geography Education

A 5. (ASIIN 3.2) Ensure that safety signs are relocated according to Safety, Health, and Environment Standards.

For the Bachelor's degree programme Informatics and Computer Engineering Education

A 6. (ASIIN 1.1) Revise publicly available documents according to the information the experts gained during the audit that the programmes address teaching education at levels above the primary school level (in contrast to the documents stating the primary level and above are addressed).

A 7. (ASIIN 1.3, 4.1) Strengthen the basic concepts of theoretical computer science (e.g, Turing machines, computability, Church's thesis, complexity, NP-completeness, run-time order, etc.) within the curriculum to foster further alignment with the Association for Computing Machinery (ACM) curriculum standards and make these concepts visible in the module descriptions.

Recommendations

For all degree programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to adopt a revised approach to planning, implementing and evaluating the curriculum, with specific emphasis in education and the goals of the learning outcomes.

E 2. (ASIIN 1.3, 3.1) It is recommended that the English language proficiency of the students and teaching staff be improved.

E 3. (ASIIN 1.3, 3.1) It is recommended to further inform and support internationalization opportunities in order to expand staff and student mobility.

E 4. (ASIIN 1.5, 2) It is recommended that the programmes try to reduce the number of modules by combining them to enhance the comprehension of the subjects and decrease the number of exams.

E 5. (ASIIN 3.1) It is recommended to develop and implement a formal policy on equal opportunities for women, with a particular focus on the representation of women in senior leadership positions.

E 6. (ASIIN 3.1) It is recommended that the university provide a system to foster internationally visible research by publishing in high-level international journals, participating in international conferences worldwide and visiting international universities as guest lecturers.

E 7. (ASIIN 3.1, 3.2) It is recommended to explore third-party funding to enhance collaboration opportunities, such as inviting more foreign researchers to UNM.

E 8. (ASIIN 3.2) It is recommended to expand access to international journals and update the book collection of the library, especially with regard to Science Education literature (Biology education, Geography education and Computer Science education).

For the Bachelor's degree programmes Biology Education and Geography Education

E 9. (ASIIN 1.3) It is recommended to reduce the amount of content concerning Content Knowledge and enhance Pedagogical Content Knowledge (PCK).

E 10. (ASIIN 2, 4.1) It is recommended that the lecturers consider international developments by including international "state of the art" literature with regard to modules, teaching, and research.

For the Bachelor's degree programmes Biology Education

E 11. (ASIIN 1.5) It is recommended to enhance the support provided to students to help them complete the program within the prescribed duration.

For the Bachelor's degree programme Geography Education

E 12. (ASIIN 3.2) It is recommended to provide adequate access to specialized software and increase the quantity of equipment in the teaching labs (e.g., Maya, Geodetic GNNS, and water quality instruments).

For the Bachelor's degree programme Informatics and Computer Engineering Education

E 13. (ASIIN 1.1) It is recommended to make clear that graduates are educated to become teachers or have jobs in educational areas, and to establish a clear pathway for students aspiring to become Computer Scientists.

E 14. (ASIIN 3.2) It is recommended to increase the number of VR units to better support larger projects or final theses.

G Comments of the Technical Committees*:*

Technical Committee 10 – Life Sciences (11.03.2025)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the requirements and recommendations proposed by the expert group. The four requirements for the Ba Biology Education are concerned with the students' workload and the ECTS credits awarded, the programme documents, the module descriptions and safety measures in the laboratories. In addition, 14 recommendations are to be made, 11 of which relate to the Ba Biology Education programme.

After a brief discussion of the procedure, the Technical Committee agrees with the positive assessment of the expert group and proposes that the degree programme be accredited with four requirements. The TC only proposes slight changes to the wording of requirement A3 and recommendations E4 and E6.

The Technical Committee 10 – Life Sciences recommends the award of the seals as follows:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**
Bachelor Biology Education	With requirements for one year	30.09.2030

Technical Committee 11 – Geosciences (03.2025)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure and follows the assessment of the experts without any changes.

The Technical Committee 11 – Geosciences recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Bachelor Geography Education	With requirements for one year	30.09.2030

Technical Committee 04 – Informatics/Computer Science (13.03.2025)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the requirements and recommendations proposed by the expert group, especially requirement A 7. The TC discusses the extent to which the theoretical foundations mentioned are necessary in the context of a Bachelor of Educa-tion and whether it is justified to refer to the requirements of the ACM. They come to the conclusion that the SSC 04 should be used as a basis for decision-making instead of the ACM. As these also require the content of theoretical computer science on the one hand and on the other hand it is described in the report that this content is also taught and that it is primarily a documentation problem, the TC agrees in principle with the re-quirement. However, the TC is in favor of deleting the examples mentioned in brackets from the requirement, as these can already be found in more detail in the report and that reference should be made to SSC 04 instead of the ACM guidelines.

In addition, the TC is in favor of slightly amending recommendation E 14 to make it clear-er that there is already an Animation Lab and that further VR units would be desirable for this.

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Bachelor Informatics and Computer Engineering Education	With requirements for one year	30.09.2030

Requirements

For all degree programmes

A 1. (ASIIN 1.5) Establish a formal mechanism to systematically monitor and assess the actual workload of students and adjust the awarded ECTS points accordingly.

For the Bachelor's degree programmes Biology Education and Geography Education

A 2. (ASIIN 1.1) Ensure that the curriculum document includes information on the competence concept within the framework of science education, including references.

A 3. (ASIIN 4.1) Revise the module descriptions to address Pedagogical Content Knowledge (PCK), fill in missing information, and increase precision, ensuring that each module's qualification objectives and content and exam types are accurately and comprehensively described in alignment with the course learning outcomes.

For the Bachelor's degree programme Biology Education

A 4. (ASIIN 3.2) Ensure that safety cabinets are linked to air extractors or installed in separate rooms with good ventilation.

For the Bachelor's degree programme Geography Education

A 5. (ASIIN 3.2) Ensure that safety signs are relocated according to Safety, Health, and Environment Standards.

For the Bachelor's degree programme Informatics and Computer Engineering Education

A 6. (ASIIN 1.1) Revise publicly available documents according to the information the experts gained during the audit that the programmes address teaching education at levels above the primary school level (in contrast to the documents stating the primary level and above are addressed).

A 7. (ASIIN 1.3, 4.1) Strengthen the basic concepts of theoretical computer science within the curriculum to foster further alignment with the SSC 04 and make these concepts visible in the module descriptions.

Recommendations

For all degree programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to adopt a revised approach to planning, implementing and evaluating the curriculum, with specific emphasis in education and the goals of the learning outcomes.

E 2. (ASIIN 1.3, 3.1) It is recommended that the English language proficiency of the students and teaching staff be improved.

E 3. (ASIIN 1.3, 3.1) It is recommended to further inform and support internationalization opportunities in order to expand staff and student mobility.

E 4. (ASIIN 1.5, 2) It is recommended to reduce the number of modules by combining them to enhance the comprehension of the subjects and decrease the number of exams.

E 5. (ASIIN 3.1) It is recommended to develop and implement a formal policy on equal opportunities for women, with a particular focus on the representation of women in senior leadership positions.

E 6. (ASIIN 3.1) It is recommended that the university provides a system to foster internationally visible research by publishing in high-level international journals, participating in international conferences worldwide and visiting international universities as guest lecturers.

E 7. (ASIIN 3.1, 3.2) It is recommended to explore third-party funding to enhance collaboration opportunities, such as inviting more foreign researchers to UNM.

E 8. (ASIIN 3.2) It is recommended to expand access to international journals and update the book collection of the library, especially with regard to Science Education literature (Biology education, Geography education and Computer Science education).

For the Bachelor's degree programmes Biology Education and Geography Education

E 9. (ASIIN 1.3) It is recommended to reduce the amount of content concerning Content Knowledge and enhance Pedagogical Content Knowledge (PCK).

E 10. (ASIIN 2, 4.1) It is recommended that the lecturers consider international developments by including international "state of the art" literature with regard to modules, teaching, and research.

For the Bachelor's degree programmes Biology Education

E 11. (ASIIN 1.5) It is recommended to enhance the support provided to students to help them complete the program within the prescribed duration.

For the Bachelor's degree programme Geography Education

E 12. (ASIIN 3.2) It is recommended to provide adequate access to specialized software and increase the quantity of equipment in the teaching labs (e.g., Maya, Geodetic GNNS, and water quality instruments).

For the Bachelor's degree programme Informatics and Computer Engineering Education

E 13. (ASIIN 1.1) It is recommended to make clear that graduates are educated to become teachers or have jobs in educational areas, and to establish a clear pathway for students aspiring to become Computer Scientists.

E 14. (ASIIN 3.2) It is recommended to increase the number of VR units in the Animation lab to better support larger projects or final theses.

A Decision of the Accreditation Commission (25.03.2025)

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

The Accreditation Commission discusses the procedure and decides that requirement A 2 should include a reference to criterion 4.3, considering that the curriculum document is an integral part of the relevant rules, which should be clearly defined and binding. The Commission also decides to make requirement A 6 more concise, as the context of this requirement has already been detailed in the accreditation report. Requirement A 6 has been reworded to clarify the need to make transparent that the programmes address teaching education at levels above the primary school.

In all other aspects, the Accreditation Commission agrees with the assessment from the experts and Technical Committees without any further changes.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**
Bachelor Biology Education	With requirements for one year	30.09.2030
Bachelor Geography Education	With requirements for one year	30.09.2030
Bachelor Informatics and Computer Engineering Education	With requirements for one year	30.09.2030

Requirements

For all degree programmes

A 1. (ASIIN 1.5) Establish a formal mechanism to systematically monitor and assess the actual workload of students and adjust the awarded ECTS points accordingly.

For the Bachelor's degree programmes Biology Education and Geography Education

A 2. (ASIIN 1.1, 4.3) Ensure that the curriculum document includes information on the competence concept within the framework of science education, including references.

A 3. (ASIIN 4.1) Revise the module descriptions to address Pedagogical Content Knowledge (PCK), fill in missing information, and increase precision, ensuring that each module's qualification objectives and content and exam types are accurately and comprehensively described in alignment with the course learning outcomes.

For the Bachelor's degree programme Biology Education

A 4. (ASIIN 3.2) Ensure that safety cabinets are linked to air extractors or installed in separate rooms with good ventilation.

For the Bachelor's degree programme Geography Education

A 5. (ASIIN 3.2) Ensure that safety signs are relocated according to Safety, Health, and Environment Standards.

For the Bachelor's degree programme Informatics and Computer Engineering Education

A 6. (ASIIN 1.1) Revise publicly available documents to make transparent that the programmes address teaching education at levels above the primary school

A 7. (ASIIN 1.3, 4.1) Strengthen the basic concepts of theoretical computer science within the curriculum to foster further alignment with the SSC 04 and make these concepts visible in the module descriptions.

Recommendations

For all degree programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to adopt a revised approach to planning, implementing and evaluating the curriculum, with specific emphasis in education and the goals of the learning outcomes.

E 2. (ASIIN 1.3, 3.1) It is recommended that the English language proficiency of the students and teaching staff be improved.

E 3. (ASIIN 1.3, 3.1) It is recommended to further inform and support internationalization opportunities in order to expand staff and student mobility.

E 4. (ASIIN 1.5, 2) It is recommended to reduce the number of modules by combining them to enhance the comprehension of the subjects and decrease the number of exams.

E 5. (ASIIN 3.1) It is recommended to develop and implement a formal policy on equal opportunities for women, with a particular focus on the representation of women in senior leadership positions.

E 6. (ASIIN 3.1) It is recommended that the university provides a system to foster internationally visible research by publishing in high-level international journals, participating in international conferences worldwide and visiting international universities as guest lecturers.

E 7. (ASIIN 3.1, 3.2) It is recommended to explore third-party funding to enhance collaboration opportunities, such as inviting more foreign researchers to UNM.

E 8. (ASIIN 3.2) It is recommended to expand access to international journals and update the book collection of the library, especially with regard to Science Education literature (Biology education, Geography education and Computer Science education).

For the Bachelor's degree programmes Biology Education and Geography Education

E 9. (ASIIN 1.3) It is recommended to reduce the amount of content concerning Content Knowledge and enhance Pedagogical Content Knowledge (PCK).

E 10. (ASIIN 2, 4.1) It is recommended that the lecturers consider international developments by including international "state of the art" literature with regard to modules, teaching, and research.

For the Bachelor's degree programmes Biology Education

E 11. (ASIIN 1.5) It is recommended to enhance the support provided to students to help them complete the program within the prescribed duration.

For the Bachelor's degree programme Geography Education

E 12. (ASIIN 3.2) It is recommended to provide adequate access to specialized software and increase the quantity of equipment in the teaching labs (e.g., Maya, Geodetic GNNS, and water quality instruments).

For the Bachelor's degree programme Informatics and Computer Engineering Education

E 13. (ASIIN 1.1) It is recommended to make clear that graduates are educated to become teachers or have jobs in educational areas, and to establish a clear pathway for students aspiring to become Computer Scientists.

E 14. (ASIIN 3.2) It is recommended to increase the number of VR units in the Animation lab to better support larger projects or final theses.

Appendix: Programme Learning Outcomes and Curricula

According to the provided "Curriculum Documents", the following Programme Learning Outcomes shall be achieved:

Biology Education Study Programme

Programme Learning Outcomes.	
Attitude	A-LO1: Be devoted to God Almighty and uphold high regard for humanity values in carrying out duties based on religion, morals and ethics.
	A-LO2: Contribute to the improvement of community, nation, and civilization based on Pancasila, as well as pride and love for the homeland.
	A-LO3: Appreciate the diversity of cultures, perspectives, religions, beliefs, and opinions; able to collaborate, possess social sensitivity, entrepreneurial spirit, and concern for society and the environment; adhere to laws, discipline, and responsibility
General Skills	GS-LO1: Capable of applying logical, critical, systematic, and innovative thinking in the development or implementation of science and technology and applying humanistic values relevant to their expertise.
	GS-LO2: Capable of assessing the implications of science and technology development by considering and applying humanistic values in their expertise, based on scientific norms, procedures, and ethics to generate solutions, ideas, designs, or art critiques
	GS-LO3: Able to make decisions in problem-solving, take responsibility, develop networks, demonstrate independence, quality, and measurability, as well as compose and document a thesis, self-evaluate, and engage in self-directed learning.
Specific Skills	SS-LO1: Have the ability to plan, design, implement, and evaluate biology learning and apply appropriate teaching approaches/models/strategies/methods according to school curriculum requirements within the framework of TPCK (Technological Pedagogical dan Content Knowledge) or SSP (Subject Specific Pedagogy) and keep up with the scientific developments in biology and its learning.
	SS-LO2: Able to mentor students and/or improve biology learning processes through action research or other research, as well as develop an entrepreneurial spirit and communicate the results or outcomes.
	SS-LO3: Able to describe natural or biological processes and phenomena and use measuring tools, teaching aids, calculators, and computer software to enhance the quality of biology learning in classrooms, laboratories, or fields, as well as design and plan biology experiments for learning or research

	purposes and conduct studies on policies or policy implementation in the field of biology education or learning.
Knowledge	K-LO1: Master the theory of concepts, principles, and basic procedures in the field of biological science, biological research or education, entrepreneurship, as well as the management and safety of working or studying in school biology laboratories in accordance with the scientific developments and learning in schools.
	K-LO2: Master the concepts, principles, pedagogical and andragogical theories, and the application of various approaches, strategies, models, planning techniques, and evaluation of learning, as well as master and apply ICT, TPACK (Technological Pedagogical and Content Knowledge), and SSP (Subject Specific Pedagogy) in line with the demands of the times and the development of current education policy issues.
	K-LO3: Understand the structure (including functional relationships between concepts) of biology and related sciences.

Geography Education Study Programme

Programme Learning Outcomes.	
Attitude	A-LO1: Be devoted to God Almighty and able to show a religious attitude.
	A-LO2: Contributing to improving the quality of life in society, nation, state, and advancement of civilization based on Pancasila.
	A-LO3: Demonstrate an attitude of responsibility for work in the field of geography education independently, struggle, and entrepreneurship.
General Skills	GS-LO1: Capable to apply logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and technology that pays attention to and applies humanities values in accordance with the field of geography education.
	GS-LO2: Capable to show independent, quality, and measurable performance, as well as maintain and develop networks with mentors, colleagues, peers both inside and outside the institution.
	GS-LO3: Capable to examine the implications of the development or implementation of technological science that pays attention to the application of geographical studies and their relationship with other sciences.
Specific Skills	SS-LO1: Identify the characteristics of students from physical, psychological, social, and cultural aspects for the benefit of learning.
	SS-LO2: Apply information and communication technology (ICT) in planning, organizing the learning process, evaluating learning and managing learning.
	SS-LO3: Capable to determine solutions to geosphere problems as a system using geography theories, approaches and principles to make wise decisions and implement human life as a source of geography learning.
	SS-LO4: Capable to present geosphere data and information using geospatial technology in geography learning in particular and education in general.
	SS-LO5: Capable to develop and apply entrepreneurship in accordance with the scientific field and the development of the times.

Knowledge	K-LO1: Have knowledge of Basic Mathematics, Basic Physics, Basic Chemistry, Introduction Environment and empirical education.
	K-LO2: Capable to analyze the character of geography learning material, the character of students, choose approaches, strategies, methods, techniques, learning media and choose assessments in accordance with active, dynamic and fun learning theories and concepts.
	K-LO3: Capable to analyze the geosphere as a system of interrelations, interdependencies and implications for human life as a source of geography learning
	K-LO4: Capable to explain the concepts and methods of obtaining geosphere data and information using geo-spatial technology in geography learning in particular and education in general.

Informatics and Computer Engineering Education Study Programme

Programme Learning Outcomes.	
Attitude	A-LO1: Cultivating religious and moral attitudes, emphasising respect for diverse cultural, religious, and ethical perspectives. Learners in this group will develop a strong sense of spirituality and demonstrate appreciation for the beliefs and original contributions of others.
	A-LO2: Instil a sense of citizenship, national pride, and social responsibility. Learners will engage in activities that contribute to the betterment of society and demonstrate a commitment to upholding laws and regulations.
	A-LO3: Developing professional skills and a sense of independence. Learners will acquire the ability to take responsibility for their work, internalise academic values and ethics, and foster an entrepreneurial spirit.
General Skills	GS-LO1: Developing critical thinking, creativity, and innovative skills in the context of applying knowledge and technology while considering and implementing humanistic values relevant to their field of expertise.
	GS-LO2: Emphasises independent, high-quality, measurable, and responsible performance. Students will learn to compile scientific descriptions of their studies and publish them as scientific articles. They will also develop networking skills with mentors, colleagues, and peers.
	GS-LO3: The ability to manage and evaluate work achievements, supervise tasks assigned to subordinates, and conduct self-evaluation for work groups. Students will also learn to manage learning independently.
Specific Skills	SS-LO1: Applying didactic and pedagogical concepts and principles to plan, implement, and evaluate computer science and informatics learning at the elementary, secondary, and vocational education levels. It also emphasises the use of modern information technology in classroom and laboratory learning activities.
	SS-LO2: The preparation of learning materials aligned with the curriculum for schools and educational institutions in the field of computer science and informatics. It also covers the application of creative and innovative learning models and the use of mathematics, science, and engineering principles to solve complex engineering problems.

	SS-LO3: Research methodology in computer science and informatics, including problem identification, formulation, analysis, and solution. It also covers the design and implementation of computer networks, entrepreneurship in the field of ICT, and the ability to analyse and evaluate business aspects for business improvement.
Knowledge	K-LO1: Mastering the concepts and principles of didactics and pedagogy to plan and implement computer science and informatics learning in primary, secondary, and vocational education settings.
	K-LO2: Mastery of innovative and current learning principles and models for the fields of informatics and computer science. Students will also gain skills in algorithm basics, software engineering, multimedia application development, and computer system fundamentals.
	K-LO3: Research methodology in the fields of informatics and computer science. Students will also learn data analysis fundamentals for research and development in technical education. Additionally, they will acquire knowledge of entrepreneurship basics and effective public communication skills.