ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Chemistry Education
Mathematics
Mathematics Education
Physics
Physics Education

Master's Degree Programme
Science Education

Provided by
Parahyangan Catholic University

Version: September 25, 2026

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A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Sarjana Fisika	Undergraduate Program in Physics	ASIIN	-	13
Sarjana Pendidikan Fisika	Undergraduate Program in Physics Education	ASIIN	-	13
Sarjana Matematika	Undergraduate Program in Mathematics	ASIIN	-	12
Sarjana Pendidikan Matematika	Undergraduate Program in Mathematics Education	ASIIN	-	12
Sarjana Pendidikan Kimia	Undergraduate Program in Chemistry Education	ASIIN	-	09
Magister Pendidikan Ilmu Pengetahuan Alam	Master of Science Education Program	ASIIN	-	09, 12, 13
Date of the contract: 24.05.2025 **Submission of the final version of the self-assessment report:** 10.02.2026 **Date of the onsite visit:** 20.05.2026 **at:** Bandung				
Expert panel: Prof. Dr. David-S. Di Fuccia, University of Kassel				

[1] ASIIN Seal for degree programmes.

[2] TC: Technical Committee for the following subject areas: TC 01 – Mechanical Engineering/Process Engineering; TC 02 – Electrical Engineering/Information Technology; TC 03 – Civil Engineering, Geodesy and Architecture; TC 04 – Informatics/Computer Science; TC 05 – Materials Science, Physical Technologies; TC 06 – Engineering and Management, Economics; TC 07 – Business Informatics/Information Systems; TC 08 – Agriculture, Forestry, Food Sciences, and Landscape Architecture; TC 09 – Chemistry; TC 10 - Life Sciences; TC 11 – Geosciences; TC 12 – Mathematics; TC 13 – Physics; TC 14 – Medicine.

Prof. Dr. Andreas Müller, University of Genf Prof. Dr. Bernhard Heim, University of Cologne Ferdinand Wadu He, SMA Negeri 5 Kupang, East Nusa Tenggara Ariqah Mumtazah, Student Universitas Hasanuddin	
Representatives of the ASIIN headquarter: Dr. Natalia Vega	
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 Technical Committee 09 – Chemistry, Pharmacy as of March 29, 2019 Subject-Specific Criteria of Technical Committee 12 – Mathematics as of 09.12.2016 Subject-Specific Criteria of Technical Committee 13 – Physics as of 20.03.2020	

B Result Overview

The most recent decision for the ASIIN Seal was made by the ASIIN Accreditation Commission on 25.09.2026.

Degree Programmes	ASIIN Seal	Validity
Ba Physics	Accredited with requirements	25.09.2026 – 16.01.2028
Ba Physics Education	Accredited with requirements	25.09.2026 – 16.01.2028
Ba Mathematics	Accredited with requirements	25.09.2026 – 16.01.2028
Ba Mathematics Education	Accredited with requirements	25.09.2026 – 16.01.2028
Ba Chemistry Education	Accredited with requirements	25.09.2026 – 16.01.2028
Ma Science Education	Accredited with requirements	25.09.2026 – 16.01.2028

Fulfilment of the Accreditation Criteria

ASIIN General Criteria / Subject-Specific Criteria	Ba Physics	Ba Physics Education	Ba Mathematics	Ba Mathematics Education	Ba Chemistry Education	Ma Science Education
1 Degree programme: Concept, Content & Implementation						
1.1 Objectives and learning outcomes (intended qualification profile)	**Not fulfilled** Requirement **A 1**	**Not fulfilled** Requirement **A 1**	**Not fulfilled** Requirement **A 1**	**Not fulfilled** Requirement **A 1**	**Not fulfilled** Requirement **A 1**	**Not fulfilled** Requirement **A 1, A 6**
1.2 Title of the degree programme	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.3 Curriculum	**Not fulfilled** Requirement **A 2**	**Not fulfilled** Requirement **A 2, A 5**	**Not fulfilled** Requirement **A 2**	**Not fulfilled** Requirement **A 2, A 5**	**Not fulfilled** Requirement **A 2, A 5**	**Not fulfilled** Requirement **A 2, A 5**
1.4 Admission requirements	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	**Not fulfilled** Requirement **A 7**
1.5 Workload and credits	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	**Not fulfilled** Requirement **A 8**

ASIIN General Criteria / Subject-Specific Criteria	Ba Physics	Ba Physics Education	Ba Mathematics	Ba Mathematics Education	Ba Chemistry Education	Ma Science Education
1.6 Didactics and teaching methodology	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
2 Exams: System, Concept and Organisation						
2 Exams: System, Concept and Organisation	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
3 Resources						
3.1 Staff and staff development	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
3.2 Student support and student services	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
3.2 Funds and equipment	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled
4 Transparency and Documentation						
4.1 Module descriptions	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled

ASIIN General Criteria / Subject-Specific Criteria	**Ba Physics**	**Ba Physics Education**	**Ba Mathematics**	**Ba Mathematics Education**	**Ba Chemistry Education**	**Ma Science Education**
4.2 Diploma and Diploma Supplement	**Not fulfilled** Requirement **A 3**	**Not fulfilled** Requirement **A 3**	**Not fulfilled** Requirement **A 3**	**Not fulfilled** Requirement **A 3**	**Not fulfilled** Requirement **A 3**	**Not fulfilled** Requirement **A 3**
4.3 Relevant rules	Fulfilled	Fulfilled	Fulfilled	Fulfilled	Fulfilled	**Not fulfilled** Requirement **A 9**
5 Quality Management: Quality Assessment and Development						
5 Quality Management: Quality Assessment and Development	**Not fulfilled** Requirement **A 4**	**Not fulfilled** Requirement **A 4**	**Not fulfilled** Requirement **A 4**	**Not fulfilled** Requirement **A 4**	**Not fulfilled** Requirement **A 4**	**Not fulfilled** Requirement **A 4**

Requirements

A 1. (ASIIN 1.1) Ensure that the intended learning outcomes of the programme are described briefly and concisely.

A 2. (ASIIN 1.3) Arrange the modules in a coherent manner to ensure the achievement of the learning outcomes.

A 3. (ASIIN 4.2) Ensure that the Diploma Supplement provides statistical data on the distribution of final grades, as set out in the ECTS Users' Guide.

A 4. (ASIIN 5) Ensure that students are informed about the evaluation results.

For the Bachelor's degree programmes Physics Education, Mathematics Education and Chemistry Education and Master's programme Science Education

A 5. (ASIIN 1.3) Make sure to teach a broader range of internationally established educational concepts and teaching approaches.

For the Master's programme Science Education

A 6. (ASIIN 1.1) Ensure that the intended learning outcomes adequately cover the subject specific and professional competences that graduates are expected to achieve.

A 7. (ASIIN 1.4) Ensure that the admission requirements and procedures are clearly defined and published, and that they are accessible to all stakeholders. They must ensure that admitted students possess the academic and professional prerequisites necessary to achieve the intended learning outcomes and must be consistent with the programme's defined target group and profile.

A 8. (ASIIN 1.5) Evaluate the student workload and award credits accordingly. Ensure that the workload is distributed evenly across the semesters.

A 9. (ASIIN 4.3) Ensure that all relevant study-related regulations are publicly available and accessible to all stakeholders in a consistent and transparent manner.

Accreditation History

The programmes have not been previously accredited by ASIIN.

C Characteristics of the Degree Programmes

a) Name	Final degree (original/ English translation)	b) Areas of Specialization	c) Corres-ponding level of the EQF[3]	d) Mode of Study	e) Dou-ble/ Joint Degree	f) Duration	g) Credit points / unit	h) Intake rhythm & First time of offer
Undergraduate Program in Physics	S.Si. (Bachelor of Science)	· Theoretical and computational physics · Applied physics · Medical physics	6	Full time	-	8 Semester	144 CSU (equivalent to 240 ECTS)	20 April 1993
Undergraduate Program in Physics Education	S.Pd. (Bachelor of Education)		6	Full time	-	8 Semester	144 CSU (equivalent to 240 ECTS)	1 September 2009 (STKIP Surya) 3 September 2024 (STKIP Surya Merge to UNPAR)
Undergraduate Program in Mathematics	S.Si. (Bachelor of Science)	· Actuarial science · Data analytics · Optimisation and dynamics Pure and educational mathematics	6	Full time	-	8 Semester	144 CSU (equivalent to 240 ECTS)	20 April 1993
Undergraduate Program in Mathematics Education	S.Pd. (Bachelor of Education)		6	Full time	-	8 Semester	144 CSU (equivalent to 240 ECTS)	1 September 2009 (STKIP Surya) 3 September 2024 (STKIP Surya Merge to UNPAR)
Undergraduate Program in Chemistry Education	S.Pd. (Bachelor of Education)		6	Full time	-	8 Semester	144 CSU (equivalent to 240 ECTS)	3 Juni 2014 (STKIP Surya) 3 September 2024 (STKIP Surya Merge to UNPAR)

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

C Characteristics of the Degree Programmes

a) Name	Final degree (original/ English translation)	b) Areas of Specialization	c) Corres-ponding level of the EQF[3]	d) Mode of Study	e) Dou-ble/ Joint Degree	f) Duration	g) Credit points / unit	h) Intake rhythm & First time of offer
Master of Science Education Program	M.Pd. (Master of Education)		7	Full time		4 semeters	55 CSU = 88 ECTS	12 November 2021 (STKIP Surya) 3 September 2024 (STKIP Surya Merge to UNPAR)

Name	Intake rhythm	Intake capacity per cohort	Average starting cohort size	Average number of graduates per cohort	Average time required to complete studies
Undergraduate Program in Physics	Annually	Max. 45 students	10 students	6 students	8.3 semesters
Undergraduate Program in Physics Education	Annually	Max. 25 students	4 students	6 students	8.4 semesters
Undergraduate Program in Mathematics	Annually	Max. 105 students	92 students	71 students	8.2 semesters
Undergraduate Program in Mathematics Education	Annually	Max. 25 students	5 students	no graduates yet	-
Undergraduate Program in Chemistry Education	Annually	Max. 30 students	4 students	no graduates yet	-
Master of Science Education Program	Biannually	Max. 30 students	4 students	no graduates yet	-

Contextualisation

Parahyangan Catholic University, commonly known as UNPAR or Universitas Katolik Parahyangan, is a private Catholic university located in Bandung, West Java, Indonesia. It was founded on 17 January 1955 in response to Indonesia's post-independence need for highly educated professionals, beginning as a Business Academy established through the cooperation of Bishop Pierre Marin Arntz of Bandung and Bishop Paternus Nicholas Joannes Cornelius Geise of Bogor. Over time, the institution expanded from economics into law, engineering, social and political sciences, philosophy, industrial technology, and the sciences.

Today, UNPAR is an urban university with its main campus in Ciumbuleuit, Bandung, and additional campus locations in the city. It offers undergraduate, master's, and doctoral education across a broad range of disciplines and is recognized in Indonesia as a private higher education institution with the national institutional accreditation status "Unggul", meaning "Excellent." In terms of size, UNPAR has roughly 10,000–11,000 students, around hundreds of academic staff, about 30 student associations, and an alumni output of approximately 1,800–2,000 graduates per year.

In the natural and formal sciences, UNPAR's Faculty of Science is located at the Ciumbuleuit Campus and currently includes three main fields of study: Physics, Mathematics, and Informatics. The Physics program is one of the older programmes at UNPAR. The Mathematics program was established in 1993 and is also part of the Faculty of Science.

The Faculty of Education was officially established in 2024 through the integration of STKIP Surya (the Surya Institute for Teacher Training and Education) into UNPAR, following a decree issued by Indonesia's Ministry of Education, Culture, Research, and Technology. STKIP Surya was a teacher-training college founded in 2009 by renowned Indonesian physicist and educator Professor Yohanes Surya under the auspices of the Surya Institute Foundation. Originally located in Tangerang Regency, Banten, the college built a strong reputation and was widely recognized for excellence in STEM teacher preparation. The new Faculty of Education at UNPAR offers seven study programmes continuing the STEM programmes previously delivered by STKIP Surya (Physics Education, Mathematics Education, Chemistry Education, and Master Science Education).

Summary Expert's Assessment

The audit panel gained a positive overall impression of the programmes. Strong commitment to programme development was evident at all institutional levels, supported by engaged and reflective staff, a clear student orientation, strong social responsibility, close cooperation with industry and partner schools, and a modern learning environment

with generally adequate laboratories and an excellent microteaching facility. Particular strengths include the integration of digital technology and the combination of theoretical and practical learning in Physics, the clear professional orientation and actuarial cooperation in Mathematics, and the planned development of distinct focus areas in Chemistry Education.

Further development should focus on more specific programme learning outcomes, coherent module sequencing, reduced curricular overlap, stronger interdisciplinary cooperation, and broader use of evidence-based teaching methods. The programmes under review would also benefit from improving access to software, and international literature and a more systematic communication on evaluation results, opportunities for mobility and professional development. The experts also recommend the programmes to broaden their research activities and balance the emphasis on LABIRIN and Olympiad courses with additional pedagogical approaches and practical teaching experience. Further programme-specific priorities include technical support for Physics laboratories, a stronger emphasis on Modern Physics in Physics Education, clearer and broader specialisations in Mathematics, more electives and updated literature in Chemistry Education, and comprehensive revision of the Master's programme documentation to clarify its target group, part-time organisation, pedagogical orientation, and flexibility for students with different backgrounds.

For the Bachelor's degree programme Physics the institution has presented the following profile in the Curriculum Handbook:

"As a core discipline, students of the Physics Study Program at Parahyangan Catholic University are expected to acquire knowledge of both theoretical and experimental aspects of physics. Through this learning process, students develop a range of essential skills, including mathematical, computational, and instrumentation abilities, as well as data analysis, presentation, and communication skills. With these fundamental competencies, Physics students are expected to contribute not only to the field of physics but also to other broader areas.

The main focus of teaching, research, and community service within the Physics Study Program at Parahyangan Catholic University includes Theoretical and Computational Physics, Applied Physics, Medical Physics, and STEM Education."

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

“The Bachelor of Mathematics program is one of the study programmes under the Faculty of Science, established by the Decree of the Ministry of Education and Culture of the Republic of Indonesia No. 4/D/O/1993 dated April 20, 1993.

Currently, there are 14 full-time lecturers, 50% of whom hold doctoral degrees from domestic (ITB) and international universities (University of Queensland, Twente, UPSI). Two lecturers are certified ASAI (Associate of the Society of Actuaries of Indonesia), and three others are in the process of obtaining certification.

The programme collaborates with the Society of Actuaries of Indonesia (PAI) to align five of the seven ASAI exam subjects with our courses. Our primary focus is the real-world application of mathematics in finance and industry through courses such as Population Dynamics, Portfolio Optimization, Quality Control, Financial Econometrics, Nonlinear Programming, and Biostatistics.

Specializations

- Actuarial Science
- Data Analytics
- Optimization and Dynamics
- Pure Mathematics and Teaching

Key Advantages

As of August 31, 2021, the Bachelor of Mathematics program holds an “Excellent” accreditation from BAN-PT. The four available specializations offer strong academic and professional preparation:

Actuarial Science

- Focused on mathematics, probability, statistics, and finance for risk management.
- The only private university program in Indonesia where students can transfer their course grades (minimum A−) to five official ASAI exam subjects:
- These five courses account for 5 out of 7 exams required for the ASAI designation.

Data Analytics

- Focused on data modeling, visualization, and data engineering.
- The Data Modeling with Python course prepares students for the CISDM (Certified International Specialist Data Modelling) certification in collaboration with Cybertrend Data Academy.

- The Data Visualization course prepares students for the CISDV (Certified International Specialist Data Visualization) certification, also in collaboration with Cybertrend.

Optimization and Dynamics

- Focused on modeling solutions for problems in industry, healthcare, and finance.
- Pure Mathematics and Teaching
- Designed to prepare future academics with strong foundations in pure mathematics and pedagogy."

For the Bachelor's degree programme Physics Education, the institution has presented the following profile on the University's website:

"The Physics Education Study Program is a study program that covers the science of physics and its application in the context of education and teaching. Students in the Physics Education Study Program at the Faculty of Teacher Training and Education, Parahyangan Catholic University, are expected to acquire in-depth knowledge and skills regarding the theoretical, practical, and pedagogical aspects of the science of physics.

Academic Focus

The focus areas for teaching, research, and community service in the Physics Education Study Program at Parahyangan Catholic University include:

1. Physics Teaching with the LABIRIN (Fun, Interactive, and Unique Learning) Approach: Organizing physics learning that is fun, interactive, and unique through creative approaches to enhance students' understanding and interest in learning.
2. Application of Physics in Practical Contexts: Integrating mathematical principles into various practical applications that can be directly applied in teaching and educational technology.
3. Physics Olympiad Teacher Education: Educating physics teachers who are capable of creating, solving, and teaching physics olympiad problems at both national and international levels."

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

"The Mathematics Education Study Program is a study program that covers the science of mathematics and its application in the context of education and teaching. Students of the Mathematics Education Study Program, Faculty of Teacher Training and Education, Parahyangan Catholic University are expected to acquire in-depth knowledge and skills regarding the theoretical, practical, and pedagogical aspects of mathematics. After studying these various aspects, students will develop several abilities, as follows:

1. Pedagogical Ability: Applying appropriate and correct educational science to teach mathematics in a fun, interactive, and innovative way at the basic and secondary education levels.
2. Mathematical Ability: Using mathematical concepts and methods as the main tools to analyze and explain various mathematical problems.
3. Computational Ability: Utilizing technology and software to model and solve mathematical problems.
4. Communication Ability: Delivering learning, ideas, and research results effectively, both orally and in writing.

Based on the abilities they possess, students of the Mathematics Education Study Program are expected to be able to contribute in the field of mathematics education as well as in various other fields that require analytical skills and high-level problem-solving.

Academic Focus

The focus areas for teaching, research, and community service in the Mathematics Education Study Program at Parahyangan Catholic University include:

1. Mathematics Teaching with the LABIRIN (Fun, Interactive, and Unique Learning) Approach: Organizing mathematics learning that is fun, interactive, and unique through creative approaches to enhance students' understanding and interest in learning.
2. Application of Mathematics in Practical Contexts: Integrating mathematical principles into various practical applications that can be directly and deeply applied in teaching and educational technology.
3. Mathematics Olympiad Teacher Education: Preparing mathematics teachers who are competent in designing, solving, and teaching mathematics olympiad problems at both national and international levels."

For the Bachelor's degree programme Chemistry Education, the institution has presented the following profile on the University's website:

“The Chemistry Education Study Program has been granted a “Good” accreditation, as stated in the decree 1361/SK/BAN-PT/Akred-PMT/S/III/2022. As part of the Faculty of Education and Teacher Training (FKIP) at Parahyangan Catholic University (UNPAR), this program is designed to produce educators who are competent in chemistry education and possess excellent teaching skills.

The curriculum provides a deep understanding of core chemistry concepts, and focuses on LABIRIN, a fun, interactive, and unique chemistry learning method. It also includes the application of technology in education, and training for the Chemistry Olympiad based on UNPAR’s SINDU values and Ethical Principles. Students will gain practical skills in the laboratory, conduct research in chemistry education, and get hands-on teaching experience through a field practice program.

Graduates of this program are expected to become high-quality educators who can apply the LABIRIN method in chemistry; coaches for the Chemistry Olympiad at the secondary school level; researchers who can solve problems in chemistry education; entrepreneurs in the field of chemistry education; and education consultants.”

For the Master’s degree programme Science Education, the institution has presented the following profile on its curriculum document:

“The Master of Science Education Study Program at Parahyangan Catholic University (UNPAR) is administered under the Faculty of Teacher Training and Education. This program specializes in the study of scientific disciplines (Natural Sciences) and their applications within educational and instructional contexts. In the Master of Science Education Program at the Faculty of Teacher Training & Education, Parahyangan Catholic University, students are expected to acquire advanced knowledge and skills concerning theoretical, practical, and pedagogical aspects of the sciences, including physics, chemistry, biology, and earth science. The program is designed to equip students with competencies necessary to become professional educators capable of developing curricula, implementing innovative teaching methodologies, and conducting high-quality educational research in science education.”

D Expert 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 (SAR)
- Student Handbook for all Bachelor's programmes
- SSC-based Objective–Module Matrix for each programme
- Curriculum document for each programme
- Module descriptions for each programme
- Satisfaction Surveys for all Bachelor's programmes
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The university states that the objectives and Programme Learning Outcomes (PLO) are in accordance with the Indonesian National Qualifications Framework (KKNI) and with the National Standards for Higher Education (SN-DIKTI). Furthermore, ILOs established by the Indonesian Mathematics Society (IndoMS) and the Physical Society of Indonesia (PSI) were taken into consideration. These inputs were then aligned with the programmes' vision and mission. The formulation process also considered labour market demands and the scientific orientation of each programme. Development of the PLO is based on collected feedback from lecturers, students, alumni, and external stakeholders as well as the needs of the labour market.

The objectives and PLO are anchored in the Student Handbook and in the curriculum document as well as published on the programmes' websites. The university also provides

a learning objectives-module matrix. This matrix describes the modules in which students learn the competencies envisaged in the PLOs. The Objective-Module Matrix confirms alignment with the ASIIN SSC for the relevant Technical Committees. The objectives and learning outcomes for all programmes under review are presented in the Appendix to this report.

For the B.Sc. Physics programme, the objectives focus on providing strong education in core physics and enabling technologies, supporting globally relevant research, and maintaining a flexible curriculum. The graduate profiles include scientists, physics teachers, academics, entrepreneurs, and medical physicists. The eight PLO cover fundamental and modern physics, instrumentation, data analysis, theoretical competence, scientific ethics, and lifelong learning. Alignment with the ASIIN SSC of the TC 13 - Physics is demonstrated through the Objective-Module Matrix, with laboratory modules supporting experimental competence, Computational Physics developing modelling skills, and Seminar and Final Project modules strengthening good scientific practice.

The Physics Study Programme conducts a regular annual tracer study to monitor graduate outcomes and evaluate the relevance of the curriculum to labour-market needs. Based on tracer studies conducted on graduates from the past four years, it was found that approximately 50% of graduates work as professionals in public and private sectors, 25% have become entrepreneurs, 17% have continued their studies to higher levels, and 8% are employed as educators and researchers. A total of 36% of graduates obtained employment before graduation, while 50% secured their first job within six months after graduation. Only 14% required more than six months to obtain employment. Overall, 86% of graduates obtained employment within six months or earlier.

Employer satisfaction with the competencies of graduates from the Physics study programme was evaluated across eight key competency areas: ethical conduct, subject-matter expertise, foreign language proficiency, communication skills, teamwork, information technology skills, self-development, and initiative in personal growth activities. The results from the past four years indicate a consistently positive assessment of graduate performance by employers. Overall, the employer satisfaction data confirm that Physics graduates are well prepared for professional practice.

The B.Sc. Mathematics programme presents a vision that connects mathematical education, research, community service, collaboration, human dignity, and the “integrity of creation”. Its objectives aim to produce graduates with strong character, collaborative capacity, mathematical competence, professional ethics, and the ability to contribute to research and community engagement. Graduate profiles include actuaries, data analysts, general industry professionals, and academicians. The nine PLO integrate communication,

collaboration, creativity, critical thinking, computational thinking, and compassion, while also addressing theoretical mathematics, applied mathematical methods, ethical judgement, and professional responsibility. The curriculum is strongly aligned with the ASIIN SSC of the TC 12 - Mathematics through systematic coverage of analysis, algebra, discrete mathematics, probability, statistics, geometry, mathematical reasoning, proof, modelling, numerical computing, and applied problem-solving.

The alumni survey conducted in 2022 revealed, as stated by the Mathematics programme, that more than three quarters of respondents waited less than six months to begin work or entrepreneurship. The survey identified four leading career destinations among graduates. The top position was held by Actuary / Insurance Professional at 19%, closely followed by Data Analyst / Data Scientist at 18%. In third place, two fields shared an equal percentage of 8%: Operations Research Analyst / Quality Control Analyst / General Industry Professional and Teacher / Lecturer / Instructor. These four career paths have led to the development of the 2023 Curriculum, leading to the introduction of four corresponding specialisations, each aligned with a specific target profession as outlined below:

Specialisation	Target profession
Actuarial Science	Actuary / Insurance Professional
Data Analytics	Data Analyst / Data Scientist
Optimization and Dynamics	Operations Research Analyst / Quality Control Analyst / General Industry Professional
Pure and Educational Mathematics	Teacher / Lecturer / Instructor

The Bachelor's programme Physics Education is designed to prepare graduates as physics teachers, physics olympiad coaches, and educational entrepreneurs. Its objectives emphasise LABIRIN-based learning, research on physics teaching challenges, and the development of educators with 21st-century skills. The thirteen PLO cover attitudes, general and specific competencies, pedagogical knowledge, physics content knowledge, and technological pedagogical content knowledge (TPACK). Alignment with the ASIIN SSC is evidenced through the mapping of PLOs to modules, with practicum and microteaching serving as key components for classroom experimentation and teaching practice. Graduates of the Physics Education study programme come from regional government scholarships. Therefore, after graduation, they will be directly placed by their respective local governments to serve educational needs in their home regions.

The Bachelor's programme Mathematics Education aims to develop mathematics teachers, researchers, and educational entrepreneurs who can contribute to secondary education through student-centred learning, technology mastery, critical thinking, and research in

mathematics education. Its thirteen PLO emphasise lesson design, classroom research, pedagogical competence, instructional planning, and entrepreneurship. The Objective-Module Matrix demonstrates alignment with the ASIIN SSC by mapping learning outcomes to modules covering mathematical content knowledge, pedagogy, educational technology, and classroom-oriented competencies.

The Bachelor's programme Chemistry Education integrates chemistry education, educational technology, laboratory safety, school empowerment, and LABIRIN-based learning. Its graduate profiles include chemistry teachers, olympiad coaches, and researchers. The fifteen PLO address technological pedagogical content knowledge (TPACK), health, safety and environment awareness, laboratory competence, professional communication, research presentation, and chemistry education expertise. The programme's alignment with ASIIN Chemistry SSC is reflected in the mapping of the graduate profile and PLOs, with particular attention to laboratory safety and HSE-related competencies in the relevant laboratory modules. Labour-market acceptance is further supported by the specific recruitment and placement pathway of the Chemistry Education study programme. A significant proportion of students are admitted through regional government scholarship schemes. Consequently, after completing their studies, graduates are directly assigned or placed by their respective local governments to serve educational needs in their home regions.

The objectives of the Master's programme Science Education focus on developing leaders in curriculum development, assessment, educational technology, science olympiad training, and research. The eleven PLO include assessment innovation, TPACK, academic publication, research methodology, and advanced science education competencies. The curriculum integrates advanced scientific content from physics, chemistry, and biology with research-oriented modules. Alignment with ASIIN SSC domains is demonstrated through modules such as HOTS Assessment and Research Methodology, while the Capstone Research Thesis consolidates advanced academic competence, research capacity, and academic integrity. Labour-market acceptance is reflected in graduates' progression into senior teaching positions and doctoral studies.

The experts note that some PLO may initially appear general in wording. During the discussions with the programme coordinators, a key question concern how the institution ensures that PLO reflect discipline-specific competencies rather than only broad or general institutional attributes. The programme coordinators explain that the PLO are developed by combining several reference points: the Indonesian Qualification Framework, minimum national and professional requirements, graduate profiles, and programme-specific academic objectives. The PLO are then translated into modules and course learning

outcomes through curriculum matrices. These matrices demonstrate how each PLO is fulfilled by specific courses and how the intended competencies are assessed.

The programme coordinators also clarify that general competencies are systematically distinguished from discipline-specific competencies through the categorisation of learning outcomes. The PLO are grouped into four main categories: attitudes, general skills, knowledge, and specific skills. While attitudes and general skills reflect broader institutional and national expectations, knowledge and specific skills provide the disciplinary substance of each programme. For example, in Mathematics, the discipline-specific dimension is reflected in outcomes related to mathematical reasoning, abstraction, modelling, analysis, and applied mathematical methods. In Mathematics Education, the programme-specific dimension is reflected in pedagogical content knowledge, lesson planning, classroom research, and the ability to teach mathematics at the relevant school level. They further explained that this distinction is made visible at course level through the semester learning plans. Assessment tasks, such as midterm examination questions, are designed to address specific topics and course learning outcomes. In some cases, several questions are used to assess one topic from different perspectives, ensuring that both conceptual understanding and applied disciplinary competence are evaluated.

For the Education programmes, the discussion focusses on whether the programmes prepare graduates only for lower secondary education or also for upper secondary education. The programme coordinators clarify that the programmes aim to prepare teachers who are able to teach both at junior secondary and senior secondary school levels.

For the Physics Education programme, the balance between classical and modern physics in the curriculum is discussed. The programme coordinators explain that classical physics forms the most important foundation for school teaching, particularly because it is central to the secondary school curriculum. Modern physics is also included in the programme and is considered relevant, especially for upper-level teaching and for strengthening students' broader understanding of physics. However, they emphasize that modern physics is less central in regular high school teaching than classical physics.

The programme coordinators also highlight that additional to regular teaching competence, the programme also prepares students to support and train pupils for physics olympiads. Feedback from users and alumni indicates that graduates are able to teach physics and contribute to olympiad preparation.

The discussion also considers how the professional target profile of the B.Ed. Mathematics Education programme is distinguished from the Pure and Educational Mathematics specialisation within the B.Sc. Mathematics programme. The programme coordinators clarify that the professional distinction lies in the fact that the educational programme is

directed towards teacher preparation and professional educational practice, whereas the B.Sc. degree programme Mathematics remains part of a mathematics degree with a stronger disciplinary and analytical focus.

For the B.Sc. Mathematics programme, the discussion addresses the relationship between graduate employment outcomes and the rationale for the four specialisations. The additional data provided by the university after the audit clarify that the 2022 alumni survey preceded the introduction of the four specialisations in the 2023 curriculum. The survey identified Actuary / Insurance Professional, Data Analyst / Data Scientist, Operations Research Analyst / Quality Control Analyst / General Industry Professional, and Teacher / Lecturer / Instructor as leading career destinations. These findings inform the design of the four specialisations and therefore provide evidence for their labour-market rationale. However, they do not yet provide employment outcomes differentiated by graduates from the respective specialisations, since the specialisations were introduced only with the 2023 curriculum.

In addition, the programme coordinators explain that the B.Sc. Mathematics programme is developing opportunities for certification through cooperation with an institution in Singapore. The planned certification areas include Data Visualisation, Data Modelling, and Data Engineering. These certificates are intended to strengthen the marketability of graduates, especially those following data-oriented specialisations.

For the Master's programme in Science Education, the experts learn from the discussions that the programme primarily addresses in-service teachers, many of whom come from partner schools. They pursue the programme in order to strengthen their professional qualifications and further develop their teaching competence. The organisation of the programme reflects this target group. As reported by the Master's students, courses are scheduled in the afternoon and evening, typically from 4:00 p.m. to 8:00 p.m., allowing working teachers to participate alongside their professional duties. The programme therefore functions as a part-time study programme designed for professional development.

According to the programme coordinators, a particular rationale for the programme is the situation in Indonesia, where a considerable number of teachers in the natural sciences may not have a formal educational or pedagogical background. The programme therefore aims to equip these teachers with stronger pedagogical, didactical, and educational competencies. The experts point out that, considering this information, emphasis should consequently be presented as pedagogy, science education, and professional teacher development, rather than as a programme focused primarily on advanced disciplinary science content.

The experts also ask how often the competence profiles and PLO of all programmes are reviewed and updated. The programme coordinators explain that curriculum and PLO development follows a five-year review cycle. The next major curriculum and competence profile review is planned for 2028. In addition to this five-year cycle, the programmes conduct annual evaluations. These yearly checks include the review of teaching methods, course implementation, learning processes, and other quality assurance aspects. They also refer to national accreditation requirements, which provide an additional mechanism for monitoring and reviewing the relevance and implementation of learning outcomes.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The descriptions of the qualification objectives for all programmes include the competences achieved and the possible career opportunities for graduates. The objectives and learning outcomes are made available to all stakeholders as they can be found on the university's website.

In summary, the expert group considers that the intended learning outcomes of the programmes are suitable for producing qualified graduates. Based on a learning objectives-module matrix describing the modules in which students learn the competences envisaged in the PLOs and the alignment between ILOs and ASIIN SSC, the experts conclude that the objectives and intended learning outcomes of the degree programmes adequately reflect the intended level of academic qualification and correspond sufficiently with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 12 – Mathematics, the Technical Committee 13 – Physics and the Technical Committee 09 - Chemistry, Pharmacy.

The experts assess the strong integration of values and social responsibility throughout the programmes very positively. They also emphasise that the programmes are clearly goal-oriented and student-centred. Feedback from industry representatives regarding students' competencies was also very positive. However, the experts conclude that the learning outcomes of all programmes under review are formulated in rather general terms and need to be specified more clearly.

For the Master's programme in Science Education, the experts conclude that the programme documentation requires substantial revision in order to present the programme profile more clearly and consistently. In particular, the documentation should explicitly define the main target group (see below 1.4), namely in-service teachers in Natural Science Education. It should also clarify that the programme's core objectives focus primarily on personal and professional development, especially in relation to the further qualification of practising teachers. The documentation should also make clear that the programme's main emphasis lies in pedagogy and science education, rather than in the

expansion of disciplinary scientific knowledge alone, and that is organized as a part-time programme. In general, it needs to be ensured that the intended learning outcomes are aligned with the actual profile of the Master's programme and with the subject-specific, pedagogical, research-related and professional competences expected at Master's level.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report (SAR)
- Student Handbook for each programme
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:
UNPAR states that the titles of the degree programmes under review follow the nomenclature of the Indonesian Ministry of Education (SN-DIKTI) and align with international academic usage. The specific degree titles are Sarjana Sains (B.Sc.), Sarjana Pendidikan (B. Ed.) and Magister Pendidikan (M.Ed.). They clearly indicate both the discipline and the academic level (Bachelor/Master).

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The experts confirm that the English translation and the original Indonesian names of all programmes under review correspond with the intended aims and learning outcomes as well as the main course language (Bahasa Indonesia).

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report (SAR)
- Student Handbook for all Bachelor's programmes
- SSC-based Objective–Module Matrix for each programme
- Curriculum document for each programme
- Module descriptions for each programme

- Satisfaction Surveys for all Bachelor's programmes
- MBKM Handbook
- Internship Guidelines
- Statistics on students' mobility
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Curriculum Structure

The Bachelor's programmes under review are full-time courses that last eight semesters. The compulsory modules in the undergraduate programmes also include general courses such as Pancasila, Catholic Religion Education / Phenomenology of Religion, Ethics and Aesthetics, Civics Education as well as Indonesian language (see curricula below in Appendix).

The B.Sc. Physics programme covers compulsory courses on core physics subjects and includes compulsory modules in modern physics, quantum physics, nuclear physics, and structure of matter/solid-state physics. Electives allow students from fifth semester onward to develop profiles in several directions such as Theoretical Physics, Materials and Condensed Matter Physics, Instrumentation and Electronics, Computational Physics and AI, Medical Physics and Radiation Applications, Physics Education and STEM teaching. Students are given the opportunity to participate in the Merdeka Belajar–Kampus Merdeka (MBKM) programme in the 6th semester and, if necessary, it can be extended into the 7th and/or 8th semesters.

The B.Sc. Mathematics programme at UNPAR combines a strong mathematical foundation with considerable flexibility for specialization and interdisciplinary learning. It offers the following four specialization areas:

1. Actuarial Science
2. Data Analytics
3. Optimization and Dynamics
4. Pure and Educational Mathematics

For each specialization track, the programme provides elective courses of three credits each, and three courses in each track are designated as specialization compulsory courses.

Compulsory courses (57%) include IndoMS-recommended core mathematics subjects such as Calculus and Linear Algebra, as well as English courses. Several courses feature practicum sessions that develop programming and software skills. Most compulsory courses are completed by fifth semester, with only the Seminar and Thesis undertaken in seventh and eight semesters, respectively. Students choose one of the four specialization tracks (8%) and complete at least four electives within that area. The remaining 25% of the curriculum consists of free electives, allowing students to broaden their expertise through courses from other specializations, computational support courses (e.g., Excel and Python), courses from other departments or universities, and MBKM programmes or internships.

The three Bachelor's education programmes combine disciplinary knowledge with educational theory, subject-specific teaching methodology, assessment, learning media, microteaching, research methodology, and field experience. Their curricula progress from disciplinary and educational foundations to teaching practice, research, and the undergraduate thesis. Programme-specific elements include LABIRIN-based courses, Olympiad preparation, and specialised disciplinary modules.

Physics Education places particular emphasis on classical physics, physics teaching, and Olympiad preparation. Mathematics Education combines advanced mathematics with mathematics pedagogy and educational research. Chemistry Education integrates the major chemistry disciplines, laboratory work, chemistry teaching methodology, and laboratory management.

The Master's programme Science Education is organized over four semesters comprising 55 SKS (approximately 88.83 ECTS). In the first year (Semesters 1 and 2), students develop advanced foundations in scientific concepts, educational technology and media, curriculum and instruction, research statistics, philosophy of science, higher-order thinking assessment, Science Olympiad, and LABIRIN-based interactive learning. In the second year (Semesters 3 and 4), the programme focuses on further scientific specialisation, advanced Science Olympiad and LABIRIN courses, the development of practical science teaching materials, and educational research methodology. The final semester is devoted entirely to the master's thesis.

Periodic Review of the Curriculum

The curriculum structure of the programmes offered by UNPAR is verified against the Indonesian National Qualifications Framework (KKNI Level 6 for Bachelor, Level 8 for Master), minimum curriculum content recommended by each field's society. The

curriculum development process follows the stages of design and development prescribed by the Ministry of Education and Culture. As stated by the university, the programmes' effectiveness is evaluated through a comprehensive review cycle integrating student module evaluations, tracer studies, and Internal Quality Audits (AMI). Specific attention is given to student workload feasibility through results from workload surveys. Findings from these instruments are channelled through the Rapat Tinjauan Manajemen (Management Review Meeting) into documented action plans. The progress of these plans is monitored every semester to ensure accountability.

Curriculum mapping is a regular process that ensures that the modules are aligned with the ILO. The Lecturer Portal and SIAKAD dashboards facilitate the monitoring of the attainment of Programme Learning Outcomes (PLO) based on direct assessment data. Additionally, graduate surveys and tracer studies reveal if the PLOs remain relevant to the labour market. AMI instruments explicitly evaluate CPL/PLO achievement and mandate corrective actions where performance gaps are identified.

In recent years, the curriculum of the programmes under review has been adjusted to ensure closer alignment with the intended graduate competence profile. These adjustments have been informed by internal evaluations and external requirements, reflecting the programme's commitment to continuous improvement. A comprehensive curriculum review and update is conducted every five years. In addition, the curriculum is evaluated annually as part of the national accreditation process and through student surveys.

The Bachelor's programme Physics, Mathematics and Physics Education are currently implementing a new curriculum, which underwent minor revisions in 2023. The curriculum documents provided for each programme contains an overview of the curricular changes and comparison with the previous curriculum.

Discussions during the audit

- *Breadth of Subject-Specific Content in the Physics Education Programme*

With regard to the Bachelor's programme in Physics Education, the experts requested clarification as to why several core physics subjects — including Electrodynamics, Special Relativity, Quantum Physics, Statistical Physics, and Nuclear and Particle Physics — are not mandatory components of the curriculum, and how the programme ensures adequate subject-matter competence among graduates if these areas remain elective.

In response, the programme coordinators explain that the programme's primary objective is to prepare graduates to teach physics at junior and senior secondary school level. Accordingly, the curriculum places particular emphasis on classical physics, which forms the

foundation of the school physics curriculum, while topics in modern physics, although considered important and addressed within the programme, are given less prominence than in a research-oriented physics degree, reflecting their comparatively limited weight in school teaching. According to the programme coordinators, feedback from alumni and employers, as well as graduates' demonstrated success in preparing students at the school, particularly, for Physics Olympiads, as evidence that the programme equips graduates with sufficient disciplinary knowledge and teaching competence. The experts remark that a schoolteacher should have knowledge and understanding that go beyond what he or she is teaching, and that the rapid advancement of science (e.g. quantum science and technology, nanoscience) warrants greater curricular attention in order to prepare future students for a society increasingly shaped by these developments. They further observe that Electrodynamics is itself a core subject of classical physics and would therefore be expected to fall within the curriculum's stated emphasis, and that several modern-physics topics are directly relevant to the school curriculum.

- *Synergy between the Physics and Physics Education programme*s

The experts also question why there are relatively few shared modules between the Physics Education and the B.Sc. Physics programmes, despite their apparent conceptual overlap. In particular, they request clarification on the differences between modules such as FIS242123-03 and PHY232003-04, which appear to cover similar topics in mechanics. The programme coordinators explain that the two programmes are intentionally differentiated because they serve different educational purposes. Whereas the Physics programme aims to provide in-depth disciplinary training in physics, the Physics Education programme is designed specifically for future teachers and therefore combines subject knowledge with pedagogical objectives. The programme coordinators also note that many students enter the programme from diverse educational backgrounds, including regions in eastern Indonesia where prior preparation in physics may vary considerably. This context has been taken into account in the curriculum design. As a result, modules that cover similar subject areas may differ substantially in terms of depth, mathematical rigor, and intended learning outcomes, reflecting the distinct goals of the two programmes.

- *Specializations in Chemistry Education programme*

With regard to the Chemistry Education programme, the experts ask whether specialization areas are included in the curriculum and considered, for example, for the selection of electives. The programme coordinators clarify that the current curriculum do not include any specialization track or option. However, they state the programme plan to establish four areas of specialization in the future.

- *LABIRIN approach*

During the discussions on-site, the experts also seek to clarify the concept and pedagogical approach LABIRIN taught in the education programmes under review. The experts invite the education programmes' students, who have attended the audit, to explain their experiences with the LABIRIN approach and its role within the curriculum. Students describe LABIRIN as an interactive and enjoyable learning approach that encourages creativity, self-expression, and active participation. They explain that the course LABIRIN 1 serves as an introduction to the concept and focuses on learning through engaging and enjoyable activities while enabling students to express ideas in their own ways. A key component of the course is the development of learning models. In LABIRIN 2, students learn to connect these models with broader educational concepts and STEM education and to prepare them for classroom implementation. Students report that the approach provides a useful foundation for their thesis work and value its emphasis on making learning meaningful and enjoyable. They also note the use of role play, experiments, videos, educational toys, and other interactive teaching methods. Some students mention that aspects of the approach are also applied in online learning environments.

From the information provided during the site visit, the panel understand that the main objectives of the LABIRIN approach are to enhance students' motivation to learn and to support the understanding of sometimes abstract concepts in STEM disciplines. Key features of the approach appear to include, among others, the promotion of positive learning emotions, interaction with peers and the natural environment, opportunities for student expression through play, mind maps, and other representational modes, as well as elements of deep learning and problem-based learning. However, the panel notes that these features are widely addressed in the international science education literature and have been extensively conceptualized and investigated within established research areas, including conceptual change and conceptual learning, student motivation and engagement, higher-order thinking skills, inquiry-based learning, and socio-constructivist approaches to teaching and learning. Furthermore, current research highlights that positive learning emotions and affective factors encompass a much broader range of constructs than enjoyment or excitement alone, including self-efficacy, interest, identity, and other learner characteristics. International research has also demonstrated that teaching approaches that are assumed to foster learning do not necessarily achieve their intended outcomes unless critical design features are present. For example, participation in laboratory activities does not automatically lead to conceptual understanding but depends substantially on the quality of instructional support and task design.

- *Olympiad Orientation*

In addition, the experts discussed the rationale behind the education programme's emphasis on preparing future teachers to coach Olympiad candidates, learning that this priority originates with STKIP Surya, from which the programmes emerged, and its founder, physicist Yohanes Surya, who established the Indonesian Physics Olympiad Team. The programme coordinators add that many students originate from eastern Indonesia, where schools report a particular need for teachers able to identify and develop high-achieving students for science Olympiads.

- *Research Orientation and Academic Level of the Master's Programme*

The experts also ask how research competence is embedded in the Master's programme Science Education curriculum and how students are prepared to conduct independent research. The programme coordinators explain that the programme places a strong emphasis on educational research. Students are required to engage in research activities throughout their studies and are expected to produce a publication based on their research. Research methodology is supported through a dedicated three-credit methodology course as well as the course Review of Research Findings in Science Education, which familiarizes students with current research literature and research practices in the field. The programme coordinators further emphasize that lecturers provide close guidance and support during the research process.

The experts also seek clarification on how the university ensures a clear distinction in academic level and complexity between bachelor's and master's programmes. In particular, they refer to examples where master's-level modules appear comparable to, or even less demanding than, bachelor's-level courses, such as LABIRIN 1 and courses in educational statistics. The programme coordinators explain that the distinction is ensured through defined rubrics and criteria for course difficulty levels. According to the coordinators, master's courses are designed with higher expectations regarding analysis, critical reflection, and independent work, even where course titles or subject areas appear similar to those found in bachelor's programmes. They stress that the level of complexity is reflected in the learning outcomes, assignments, and assessment requirements rather than solely in course titles or contact hours.

- *Student and alumni feedback*

In general, the students interviewed express satisfaction with the structure and content of the courses, the support provided, and the variety of elective courses on offer. Physics Education programme's students report that the programme provides strong preparation for becoming physics teachers and for participating in and coaching academic competitions, including Physics Olympiads. They highlight opportunities for collaboration

with external partners such as BRIN (Badan Riset dan Inovasi Nasional/National Research and Innovation Agency). At the same time, some students of the Physics education programme suggest that subjects such as Quantum Physics could be strengthened further by making them compulsory. Mathematics and Chemistry Education students similarly considered themselves well prepared and appreciate the combination of disciplinary and pedagogical knowledge provided by the programmes.

When asked about the structure and sequencing of the curriculum, students indicate that the courses are generally well connected and build progressively on one another. Physics students emphasize that the courses follow a coherent progression, while mathematics students similarly report that earlier courses provide a useful foundation for later, more advanced topics. They note that course content becomes increasingly abstract as the programme progresses. Students also appreciate the availability of matriculation or preparatory courses before the start of the programme, which help facilitate the transition into university studies, especially in subjects that they perceive as challenging.

Regarding curriculum flexibility, the experts ask whether students would like to have more elective options. Responses varied by programme. Mathematics students note that some opportunities to take additional courses exist, particularly from the second semester onwards. Physics students feel that a sufficient number of electives were already available, whereas students of the Chemistry Education programme express a desire for additional elective opportunities, as they currently have only one elective course to be selected during their studies.

The students in the Master's programme Science Education generally report that they do not perceive any unnecessary repetition of content from their bachelor's studies. They state that the master's programmes provide more advanced and specialised content and move beyond high-school-level topics. During the discussions, the experts learn that all master's students are already employed as teachers and pursue their studies alongside their professional work, often through a combination of online and face-to-face teaching formats scheduled in the late afternoon and evening. Several students also indicate that they have entered the programme through scholarship and were motivated by the opportunity to deepen their knowledge and professional expertise.

Alumni generally rate the programme positively and considered graduates to have good employability prospects. Overall, the programmes are considered to provide a good balance between theory and practice. However, graduates from the education programmes identify challenges in the transition to the teaching profession, especially regarding communication skills, classroom management, and working with children and

students with special needs, which they perceived as a gap in the programme. They also suggest establishing a dedicated internship platform for students.

In their summative evaluation of the curriculum, the ASIIN expert team comes to the following conclusions:

The experts are of the opinion that the curriculum is regularly reviewed and that suggestions and input from stakeholders are used as important considerations in the curriculum review process. The experts acknowledge the amount of effort and thought invested in the development of the programmes under review. Students and graduates appear to be very satisfied with their respective programmes and feel well prepared for their future careers.

For Bachelor's Physics and for the Physics Education programme, the experts highlight the twofold approach to different student preparation/background with a) basic physics and b) advanced level courses, e.g. mechanics, focussing on conceptual/phenomenological and more mathematical approaches, respectively. In addition, they rate the blend of mathematics and theoretical physics in "mathematical physics" courses positively. The experts are also of the opinion that the programmes offer a range of interesting and well-chosen electives.

With regard to B.Sc. Mathematics programme, the experts conclude that it prepares students well for the labour market, in particular through its specialisation courses. The programme benefits from a clearly structured curriculum, and a well-established academic profile. The collaboration with the Society of Actuaries of Indonesia was considered very valuable for the programme.

For the Chemistry Education programme, the experts welcome the programme's plans to establish four areas of specialization in the future, as this is expected to enhance students' opportunities for academic profiling, specialization, and individual choice within the curriculum.

Nevertheless, the experts consider that some aspects of the curricula could benefit from further development across all programmes under review:

Firstly, with regard to all programmes under review, the modules need to be arranged in a more coherent manner to ensure the achievement of the learning outcomes and completion of the study programme within the standard timeframe. Special attention should be given to the learning progression, the reduction of redundancies and making use of synergies between different faculties of the Faculty of Science and Faculty of Education. In addition, the proportion of courses entirely unrelated to STEM could be lowered.

Furthermore, the experts encourage the institution to consider reducing the minimum number of participants required for a course to be offered.

For the B.Sc. Mathematics programme, the experts conclude that the current range of specializations need to be extended. While they considered the existing specializations in Actuarial Science, Data Analytics, and Optimization and Dynamics to be appropriate and worth maintaining, they suggested restructuring the current fourth specialization, Pure/Educational Mathematics. In the experts' view, this track combines two distinct academic orientations and should therefore be divided into two separate specializations: one focusing on Pure Mathematics and another dedicated specifically to Mathematics Education. Such a distinction would provide clearer academic profiles and allow students to pursue pathways that are more closely aligned with their interests and career goals.

For the educational programmes as a whole, the experts identify several areas for further development. First, they recommended reconsidering the particularly strong emphasis placed on the LABIRIN approach and participation in science Olympiads in order to ensure that the programmes are grounded in a broader range of internationally established educational concepts, teaching approaches, and learning opportunities. The experts consider that the further development of the education programmes could benefit from a broader conceptual and empirical foundation that takes relevant international research in science education into account. In this context, it would be advisable to keep LABIRIN as one pedagogical approach among several evidence-informed approaches rather than as the overarching conceptual framework of the programmes. Finally, the experts encourage the programme to subject the LABIRIN approach itself to systematic empirical evaluation in authentic classroom settings in order to establish evidence for its effectiveness and added value. The experts panel also recommends reconsidering the naming and descriptions of the corresponding courses to align them more closely with internationally recognized concepts and terminology (e.g., Teaching for Motivation and Understanding).

In addition, an examination of the study plan and module handbook of the Bachelor's Physics Education programme reveals that core physics subjects such as Electrodynamics, Quantum Physics and Nuclear Physics are not part of the mandatory curriculum but only offered as elective courses. Therefore, the experts conclude that these courses need to be mandatory.

Moreover, the experts observe that some elements of the curriculum of the Physics education programme may require reconsideration in terms of balance and prioritisation. In particular, they question whether the current requirement of two compulsory courses focused on Physics Olympiads is fully aligned with the needs of all future physics teachers and suggest reviewing the allocation of curriculum space in relation to broader subject-

specific and pedagogical learning objectives. The experts recommended placing a stronger emphasis on Modern Physics within the Physics Education Programme in order to ensure that graduates possess a sufficiently broad and up-to-date understanding of the discipline. In order to do so, the necessary study volume could be created by optimizing some curricular unbalances. They also encourage the Physics Education programme to explore opportunities for greater integration with the B.Sc. Physics programme through a larger number of shared courses, where appropriate, to strengthen disciplinary depth and facilitate academic exchange between the two student groups.

The experts are also of the opinion that the curriculum of the Bachelor's Physics Education and Mathematics Education programmes as well as the Master's Education programme should allow for more practical experience for teaching real students and students with special needs.

For the Bachelor of Chemistry Education programme, the experts recommended increasing the number and variety of elective courses available to students. In particular, they suggest exploring synergies with the Chemical Engineering Department to broaden the range of elective offerings and make more efficient use of existing teaching resources. More generally, the experts encourage the programme to provide students with greater flexibility and more opportunities for individual specialization through elective coursework.

With regard to the Master's Programme in Science Education, the experts consider the overall documentation to require substantial revision in order to communicate the programme's profile more clearly (see also 1.1, 1.4 and 4.3). They emphasize that the documentation should explicitly identify the programme's main target group, namely in-service teachers in the natural sciences. Furthermore, the programme's primary objectives should be clearly articulated as supporting both professional and personal development. The experts also recommend that the programme's part-time character be stated more explicitly, as this appears to be a defining feature of its structure and delivery. Finally, they suggest that the strong emphasis on pedagogical development should be reflected more consistently throughout the programme documentation.

In addition, the experts recommend making the Master's programme in Science Education more modular and flexible in order to better accommodate participants with diverse academic and professional backgrounds. Given that students enter the programme from different disciplines and with varying levels of prior knowledge, a more differentiated and adaptable curriculum structure would help ensure that all participants can benefit fully from the programme.

International Mobility

UNPAR facilitates student mobility through the national Merdeka Belajar Kampus Merdeka (MBKM) framework as well as through institutional partnerships. Mobility windows vary across the programmes and are scheduled based on the application and intake periods announced by the Ministry and other relevant external agencies.

Credits from other institutions in Indonesia or abroad are recognized following the policies on Externally Acquired Qualifications. Recognition is based on the achievement of intended learning outcomes and may be implemented through structured, free-form, or hybrid conversion schemes. Study programmes are required to define equivalencies, provide assessment rubrics, and ensure alignment with programme learning outcomes. A minimum of 20 credits must be available for the recognition of MBKM activities, and the recognition process is subject to approval by the study programme, formal assessment, and quality assurance procedures.

According to the statistics on incoming and outgoing students provided by UNPAR, international mobility and incoming students is not existent in the programmes under review. National mobility is reported for some students of the programmes under review within the activities of the MBKM programme e.g. Internship, Field Experience Practice, Teaching Assistance Programme etc.

The experts ask the rectorate to clarify whether the university has an institutional or programme-level strategy for internationalisation, noting that mobility activities appeared to be focused primarily on national exchange programmes. In response, the rectorate emphasize that internationalisation is an important objective, particularly because many students are interested in gaining international experience. They explain that student participation in international mobility had previously been supported through the government-funded Indonesian International Student Mobility Awards (IISMA) programme. However, as this programme is currently no longer available, financing international mobility has become more challenging and the university is exploring alternative funding opportunities. The rectorate highlights ongoing international collaborations, including participation in the International Network of Universities and various partnerships with international institutions that support academic exchange activities. During the discussion, efforts to expand cooperation with European universities are also reported, including Erasmus-related mobility schemes. It is indicated that the university continues to seek additional resources and partnerships to strengthen international mobility opportunities.

Moreover, the representatives of the rectorate outline plans to increase the attractiveness of the university for international students, particularly in the master’s programmes. One

strategy under consideration is the gradual introduction of master's-level courses taught in English.

During the on-site visit, several students indicate that they would like to pursue further studies abroad in the future, with one student specifically mentioning plans to continue in the field of astrophysics, while others express an interest in undertaking master's studies in another country. Students report that the university provides information about international mobility opportunities and that exchange programmes, including partnerships with universities in Japan and Korea, are available. They also note that lecturers are approachable and willing to provide advice and support regarding mobility opportunities. However, some of the students' participants state that information about support measures could be enhanced.

In their summative evaluation of the mobility, the ASIIN expert team comes to the following conclusions:

The experts acknowledge the efforts made by UNPAR to encourage international mobility and expand the cooperation with international institutions. However, there is still potential for improvement with regard to international academic mobility. Therefore, the experts recommend that the internationalisation strategy be enhanced by providing stronger support for student international mobility and facilitating and initializing more international exchange with foreign institutions. Furthermore, support measures related to international mobility should be regularly communicated to students.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report (SAR)
- Admission requirements UNPAR
- Admission Rate Statistics
- Rector's Regulation on recognition of prior learning
- Recognition of MBKM
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:
As stated in the SAR, admission to both undergraduate and graduate programmes is governed by the University's Admission Regulations (Rector's Regulation of 15 May 2023). The admission requirements, application schedule, registration procedures, and selection tests are published on UNPAR's website and are therefore accessible to all stakeholders.

Admission to undergraduate programmes is open to applicants who have completed, or are in the process of completing, an accredited secondary-school qualification. Applicants holding foreign or international qualifications must obtain an official certificate of diploma equivalency. International applicants must also submit a valid passport.

Several admission routes are available for undergraduate programmes (B.Sc. and B.Ed.):

- **School Partnership (Jalur Kemitraan):** For high-achieving students from partner schools.
- **Academic Achievement (Jalur Rapor):** Based on applicants' secondary-school report-card performance.
- **Entrance Test (USM/UTBK):** A computer-based test for general applicants.

Admission to master's programmes requires a recognised bachelor's degree. The required supporting documents include a curriculum vitae, two academic or professional letters of recommendation, a motivation letter or statement of purpose, proof of English-language proficiency—such as TOEFL, IELTS, or an equivalent recognised test—and an accepted academic aptitude test result, such as TPA, GRE, or GMAT, depending on the programme's requirements. Applicants holding degrees from foreign or otherwise unrecognised institutions must provide an official certificate of qualification equivalency.

The admission requirements, including minimum grades in prerequisite subjects such as mathematics and physics, are carefully tailored to the entry level of each degree programme. Their effectiveness is assessed by analysing admission statistics in conjunction with students' academic performance during their first year of study. In addition, several degree programmes offer bridging or matriculation courses during the first year to better prepare students for their programme modules.

To support students who meet the general admission criteria but may lack specific prerequisites, the programmes provide structured support, including bridging modules designed to help underprepared students acquire the minimum prerequisite knowledge and skills. Academic advising is also available to students identified as being at risk during the admission process. These students are placed on learning contracts and receive intensified supervision from their academic advisors.

Applicants who do not meet a programme's specific admission criteria are advised on alternative study pathways that are better aligned with their qualifications.

Furthermore, UNPAR provides a special scholarship for students with disabilities granted for a maximum of ten (10) semesters for the Undergraduate (Bachelor) Programme and eight (8) semesters for the Diploma Programme.

As stated in the SAR, the admission regulations are reviewed periodically by monitoring key performance indicators, including gateway-module pass rates, progression rates to subsequent semesters, and first-year dropout rates.

The university provides following admission rate statistics:

B.Sc. Mathematics (MAT)

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)[1]
2021	455	200	158	79%
2022	351	150	126	84%
2023	252	100	78	78%
2024	186	100	65	65%
2025	295	100	64	64%

B.Sc. Physics (PHY)

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2021	74	15	10	66.67%
2022	50	15	12	80%
2023	40	15	8	53.33%
2024	42	15	14	93.33%
2025	44	15	6	40%

B.Ed. Mathematics Education (PEM)

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	5	10	5	100%
2025	30	10	8	80%

B.Ed. Physics Education (PEF)

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	4	10	4	100%
2025	18	10	5	50%

B.Ed. Chemistry Education (PEK)

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	4	10	4	100%
2025	43	15	11	73.33%

M.Ed. Science Education (MSE)

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2021	-	-	-	-
2022	-	-	-	-
2023	-	-	-	-
2024	17	15	13	86.67%
2025	2	15	2	13.33%

Overall, the statistics demonstrate growing aggregate applicant interest in 2025, driven mainly by B.Sc. Mathematics and the new education programmes.

During the discussion on-site, the representatives of the rectorate and the relevant faculties explain that their long-term sustainability strategy focuses on curriculum development, stronger promotion, and collaboration with industry to increase programme relevance and attract more applicants. The university considers these programmes to have significant growth potential and expects research projects to enhance their visibility and generate additional student interest. International accreditation is also viewed as an important means of strengthening institutional reputation and improving the programmes'

attractiveness nationally and internationally. In parallel, the university plans to expand scholarship opportunities for students from economically disadvantaged regions, thereby improving access and broadening the recruitment base.

With regard to recognition of prior learning, the university's Recognition of Prior Learning (RPL) Type A regulation enables applicants to obtain partial recognition of learning outcomes acquired through previous formal education, non-formal or informal learning, and relevant professional experience. Recognition may be granted through credit transfer (Type A1), assessment of experiential learning (Type A2), or a hybrid model combining both routes. Recognized credits may account for up to 75% of the curriculum in diploma and bachelor's programmes and up to 70% in master's and doctoral programmes. Individual study programmes may establish lower limits. Course recognition requires at least 75% equivalence between the prior and intended course learning outcomes. Final projects, theses, dissertations, and university-specific courses cannot be recognized. Students must complete at least two semesters at the university in diploma, bachelor's, and master's programmes, and at least three semesters in doctoral programmes. Applicants who do not meet the RPL assessment requirements may still apply through the university's regular admission pathways.

During the discussions on-site, the experts learn that all master's students are already employed as teachers and pursue their studies alongside their professional work, often through a combination of online and face-to-face teaching formats scheduled in the late afternoon and evening. Several students also indicate that they have entered the programme through scholarship schemes and were motivated by the opportunity to deepen their knowledge and professional expertise. The experts note that no programme-specific admission requirements and prerequisites for the Master's programme in Science Education have been defined (see also above 1.3).

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The admission rules for the Bachelor's programmes under review provide potential students with detailed information on the requirements and steps necessary to apply for admission to the programmes. As they are based on national official regulations, the experts consider them to be binding and transparent. The experts are of the opinion that the statistics on academic success suggest that the admission requirements are broadly effective in admitting students who are able to complete the programmes successfully.

However, the experts note that, at present, general university-level admission requirements are described for all Master's degree programmes, but programme-specific prerequisites for the Master's programme in Science Education are not sufficiently defined.

Given the specific profile of the programme and the heterogeneous disciplinary backgrounds of potential applicants, the admission requirements should ensure that students possess the academic and professional prerequisites necessary to achieve the intended learning outcomes.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report (SAR)
- Student Handbook for each programme
- Curriculum document for each programme
- Module descriptions for each programme
- Statistics on student success
- Report on Student Workload and Learning Process Survey Results
- Sample Workload Survey
- Guide To Calculating Semester Credit Units (SKS) - European Credit Transfer and Accumulation System (ECTS) Student Workload
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Based on the National Standards for Higher Education of Indonesia (SNPT), all programmes under review use a credit point system called Satuan Kredit Semester (SKS). UNPAR uses a credit system based on student workload. As stated in the SAR, 1 SKS corresponds to a total of 45 hours of student learning per semester (time-on-task), in accordance with the National Standards for Higher Education (SN-DIKTI).

The weekly time-on-task per 1 SKS is differentiated by activity type:

- Lectures/Tutorials: ~50 minutes face-to-face + 60 minutes structured assignments + 60 minutes independent study per week (Total: 170 mins/week).
- Seminars & Practicals: ~170 minutes of activity per week.

The conversion factor to ECTS is 1 SKS ≈ 1.66 ECTS based on 1 SKS = 45 hours, 1 ECTS = 27 hours.

The total workload of 144 SKS (equivalent to 240 ECTS) for the Bachelor's programmes under review, for the B.Ed. Chemistry, 145 CSU (equivalent to 241.67 ECTS), is structured to be completed within eight semesters. The two-year Master of Science Education Programme comprises 55 SKS (equivalent to 88 ECTS).

As stated in the SAR, the alignment between planned and actual student workload is continuously monitored and improved through a multi-source quality assurance cycle. During the planning stage, the expected time-on-task for all learning, teaching, assessment, and independent study activities is calculated in each Module Description and validated by the curriculum committee. The university explains that SKS allocations are determined by the Programme Curriculum Committees based on the scope and depth of content required to achieve the Intended Learning Outcomes. During implementation, lecturers monitor whether actual learning and assessment activities correspond to the approved workload, while assessment demands are additionally reviewed through the Internal Quality Audit (AMI).

The planned workload is verified against student experience through the End-of-Semester Survey (EDOM) and dedicated workload surveys. The resulting data are systematically analysed to identify discrepancies between the assigned credits and the workload experienced by students. Where deviations are identified, the faculty implements corrective measures.

The workload survey's carried out by UNPAR show a deep and comprehensive monitoring of the time invested by students for the courses and independent learning. The questionnaire includes questions regarding study workload, study intensity and time allocation, student learning activities, academic assignment workload, impact on understanding and learning achievement as well as perceived effectiveness of the SKS system.

The students interviewed generally consider the workload adequate and manageable and reported no significant pressure. Physics courses are perceived as academically demanding but still manageable. A typical workload of 20 SKS includes approximately four to six hours of classes per day, with schedules such as 08:00–14:00 or 10:00–17:00. Although homework is assigned periodically, students indicate that they have sufficient time for preparation, independent study, and completion of assignments. Overall, the student feedback suggests that the workload, including examinations, is appropriate to the course requirements.

The experts note that the master's thesis is allocated 6 SKS, corresponding to 10 ECTS, which is the same credit allocation as for the undergraduate thesis. During the discussions on-site, the programme coordinators confirm that the master's thesis component carries 6 SKS, corresponding to approximately 10 ECTS, and covers the research seminars, thesis preparation, and final defence. Students receive individual supervision and mentoring, may participate in peer-consultation groups, and meet regularly with their academic advisor. During the thesis period, students are expected to undertake approximately 20–24 hours per week of independent research, data analysis, and academic writing. The coordinators consider this workload appropriate for achieving the intended thesis learning outcomes.

According to the academic success statistics provided by UNPAR, the average time to graduation for students in the 2015–2016 to 2018–2019 cohorts of the bachelor's programmes was approximately eight semesters and therefore did not exceed the standard period of study.

During the discussions, the experts note the relatively high dropout rates in the 2022–2023 and 2023–2024 cohorts of the B.Sc. Mathematics programme and ask about the underlying reasons. The programme coordinators explain that most cases resulted from students voluntarily withdrawing, generally during their first year. A smaller proportion was attributable to the periodic academic evaluation conducted at the end of the fourth semester, at which students must demonstrate that they have met defined minimum academic requirements. Students who have not yet fulfilled these requirements may be granted a one-semester extension before being dismissed. Overall, voluntary withdrawal is identified as the principal factor behind the dropout rates.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The credit system is based on workload, which includes contact hours and self-study time. The workload data provided for the programmes under review appears internally consistent. The programme has been designed to ensure that all compulsory components are included, and credits are awarded for every module based on the respective workload. According to students' feedback, the workload is manageable and appropriate.

However, with regard to the Master's programme in Science Education, the experts are of the opinion that the current documentation needs to demonstrate a consistent relationship between the actual workload, the credit allocation, and the academic level of the thesis. In particular, the allocation of 6 SKS (10 ECTS), identical to that of an undergraduate thesis and representing the sole curricular component of the final semester, requires explicit justification in light of the reported workload of approximately 20–24

hours per week. The university should either substantiate the present allocation convincingly or adjust the credit allocation accordingly.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report (SAR)
- Student Handbook for each programme
- Curriculum document for each programme
- Module descriptions for each programme
- MBKM Handbook
- Internship Guidelines
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Various teaching and didactic methods are implemented in the programmes under review. UNPAR applies an Outcome-Based Education (OBE) philosophy through blended learning, combining face-to-face teaching with the IDE Learning Management System. Teaching effectiveness is monitored through end-of-semester student evaluations and peer observations. The results inform improvements in the variety, design, and sequencing of assessments.

The lecturers explain in the discussions with the experts that the most commonly used teaching methods are student-centred and interactive, rather than predominantly lecture-based. Lecturers combine short theoretical introductions with group discussions, student presentations, guided exercises, and digital learning activities. Particular attention is paid to the student learning process. Lecturers introduce tasks step by step, use guiding questions to encourage critical thinking, and provide exercises that allow students' progress to be monitored continuously. Digital tools further support interaction, participation, and independent learning.

Tutorials (responsi) are supplementary activities designed to strengthen students' understanding and problem-solving skills through weekly worksheets and lecturer-guided exercises. Students are expected to complete all assigned problems to help them:

- develop course-related problem-solving abilities;
- understand and assimilate lecture content; and
- prepare effectively for the mid-semester (UTS) and final (UAS) examinations.

The curriculum progressively develops students' ability to undertake independent scientific work. Foundational modules in research methods, academic writing, and seminar work are followed by enquiry-based laboratory activities and project-based modules, culminating in the final thesis. As stated in the SAR, thesis regulations, assessment rubrics, academic-integrity procedures, research-ethics guidance, and Turnitin support provide a structured framework for independent work. Independent learning undertaken through the MBKM programme is regulated by formal learning agreements.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The teaching methods and instruments are considered suitable by the experts for supporting the students in the achievement of the intended learning outcomes. In addition, they confirm that the study concept of the programmes under review comprises a variety of teaching and learning forms as well as practical parts that are adapted to the respective subject culture and study format.

The experts highlight that the microteaching lab is very well-designed and equipped to enhance the teaching skills of prospective teachers. Regarding the B.Sc. Physics and B.Ed. Physics, the experts acknowledge the strong presence of digital technology in lab courses, with a broad range of up-to-date techniques. However, they consider that the student handbooks and module descriptions should clearly explain how tutorial groups are integrated into the curriculum including their purpose, format, responsible staff members, workload and corresponding SKS credits, as well as their relationship to the relevant courses and examinations (see below 4.1).

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

With regard to Criterion 1.1, the university provides an updated programme profile and revised learning outcomes for the Master's programme in Science Education. According to UNPAR, discipline-specific learning outcomes for the Bachelor's programmes are being developed by the 2028 Curriculum Development Teams. The Mathematics team has already been established, nominations for the Physics team have been requested, and ten revised learning outcomes for the Physics Education programme have been drafted.

The experts consider the issue unresolved, as Annex 2 appears to contain updated objective-module matrices only for the M.Ed. programme, while revisions for the Bachelor's programmes have been deferred to the 2028 curriculum development process, the outcomes of which cannot yet be assessed. In addition, the updated PLOs for the Master's programme in Science Education focus on physics and do not adequately align with the intended learning outcome concerning experimentation (see Requirements A1 and A7).

Regarding the curriculum-related issues addressed in the report, the university states that curriculum coherence, including progression, the reduction of redundancies, FTIS–FKIP synergies, and the proportion of non-STEM credits, has been incorporated into the assignments of the 2028 Curriculum Development Teams. In response to a request for clarification concerning the implementation schedule, the university further explained by email that "UNPAR has an established and procedurally light Curriculum Addendum mechanism for formally amending a running curriculum, requiring a proposal to the Faculty Senate and administrative issuance — as applied to the B.Ed. Chemistry Education in 2026 (Annex 10). Using this mechanism, the mandatory status of the physics courses named in the report — already approved at faculty level on 3 June 2026 (Annex 08) — will be submitted to the Faculty Senate in the odd semester of 2026/2027, with the formal addendum issued by early 2027".

Additionally, the university accepts that key physics subjects in the B.Ed. Physics Education programme should be mandatory and confirms that they will become compulsory in the updated curriculum. The changes will also include strengthened Modern Physics content and the relocation of the Olympiad courses to an optional concentration track. Further recommendations, including programme restructuring, expanded electives and shared courses, the evidence-based use of LABIRIN, broader teaching practice, and minimum-enrolment thresholds for electives, have been incorporated into the mandates of the Curriculum Development Teams.

The experts appreciate the explanations provided by the university. However, as the proposed changes have not yet been implemented, they maintain the respective requirements (see Requirements A2, A5, and A6).

UNPAR also explains that a mechanism is already in place for applying the minimum-enrolment threshold for electives. Under the existing procedure, modules required for students' academic progression may be exempted from the general threshold through a standing approval process. The relevant Directorate decision has been submitted as evidence. The experts therefore consider this issue resolved, as the mechanism ensures

that necessary courses can be offered even when the minimum-enrolment threshold is not met..

With regard to the mode of study of the Master's Science Education, the university clarifies following: "The programme is registered nationally (PDDikti) as a regular (full-time) programme whose teaching is scheduled in late-afternoon/evening blocks to accommodate in-service teachers; no separately registered part-time track exists, and the arrangement implies no reduction of curriculum, workload, assessment standards, or qualification level. References to a "part-time organisation" should be read accordingly (see also Criterion 1.1)". The experts appreciate this explanation.

Regarding the insufficiently defined admission prerequisites for the Master's programme under review (Criterion 1.4), the university states that programme-specific requirements have been drafted, included in the revised M.Ed. Student Handbook, and submitted for formal approval. The experts acknowledge the measures taken by the university and welcome the revised Student Handbook for the Master's programme. Nevertheless, as the draft handbook has not yet been formally approved, they maintain the requirement (see Requirement A8).

Regarding the thesis workload, UNPAR clarifies that the 6-SKS thesis corresponds to 270 hours and is the only academic component scheduled in the fourth semester. This workload can be completed over approximately 12 to 14 weeks at 20 to 24 hours per week, representing a realistic research commitment for regular students. The thesis constitutes the final research and writing phase of a supervised research pathway comprising 20 SKS, which also includes methodology, statistics, reviews of research findings, and instrument development. Its distinction from a Bachelor's final project is demonstrated through Master's-level learning outcomes and assessment criteria. The workload calculation is presented consistently in the revised handbook and programme profile and will be verified through supervision records during the 2026/27 academic year.

The university further confirms that tutorials are credited course components whose purpose, format, responsibilities, workload, and assessment have been documented in the revised module handbooks.

The experts acknowledge the university's explanation of the 270-hour thesis workload but consider the issue only partially resolved. Further evidence is needed regarding the actual workload, its distribution between preparatory modules and the thesis, and its alignment with the expected scope and level of independent Master's-level research (see requirement A9).

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report (SAR)
- Student Handbook for each programme
- Module descriptions for each programme
- Examination regulations
- Results Surveys
- Statistics on Grade distribution
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:
As stated in the SAR, examination schedules are coordinated centrally and published before enrolment to minimise scheduling conflicts. A no-class policy applies during final examination periods, allowing students sufficient time to prepare.

The form of each exam is specified in the module descriptions that are available to the students via the IDE Learning Management System. The module descriptions also specify the assessment components, their respective weightings, and the applicable assessment criteria and rubrics. Standardised rubrics are used for all major assessments.

Examination forms used are in accordance with the competencies to be achieved in the modules. The SAR mentions following usual assessment methods:

- "Written Examinations: Assess conceptual understanding and analytical mastery.
- Practical/Laboratory Examinations: Assess procedural skills and safety competence (e.g., OSPE/OSCE-style stations).
- Oral Examinations & Seminars: Assess argumentation and scientific communication.
- Portfolios & Projects: Document continuous learning and problem-solving application.

- Thesis/Capstone: Assess independent research, critical analysis, and scholarly writing".

Mid-term and end-of-semester examinations are generally conducted for each course. Grades A, B+, B, C+, C, D+, and D are considered passing grades, whereas a grade of E indicates failure. Performance in each course is assessed on a scale from 0 to 100. For the calculation of the grade point average, each letter grade is assigned a numerical value on a 4.00 scale, as shown below:

Final Numeric Score	Final Grade
≥ 80	A
77 – 79	A
73 – 76	B+
70 – 72	B
67 – 69	B
63 – 66	C+
60 – 62	C
50 – 59	D
< 50	E

According to the regulations, students are entitled to review their marked examination scripts and receive feedback during designated consultation periods. Students unable to attend scheduled examinations for approved reasons, such as illness or official assignments, may be granted a make-up examination in accordance with the procedures set out in the Rector's Regulation. Eligible students who have not achieved the minimum course learning outcomes may receive remedial opportunities. Their scope, format, and assessment limits are determined by the Head of the Study Programme, with the Dean authorized to establish additional faculty-level provisions.

Students with documented disabilities receive reasonable accommodations in examinations, academic scheduling, classroom allocation, and wider campus participation. Measures may include accessible examination venues and classrooms, individual invigilation, extended examination time, assistance from scribes, adapted schedules, ramps, and accessible toilets.

As highlighted in the SAR, UNPAR applies a zero-tolerance policy toward academic misconduct. Prohibited conduct includes plagiarism, cheating, impersonation, unauthorized collaboration, falsification of academic documents, and misuse of another person's university account. Preventive measures include instruction on ethical citation and academic writing in research methodology and thesis-related courses. Written assignments, particularly theses, are screened using Turnitin.

External academic activities undertaken within the MBKM programme, including internships and externally supervised theses, are governed by formal Learning Agreements. These agreements define the intended learning outcomes, planned activities, supervision arrangements, and assessment methods. Academic quality is ensured through dual supervision involving an external mentor and an internal academic supervisor, as well as through the use of standardised assessment rubrics. Credits are recognised in accordance with the University's standard operating procedures and relevant national policies. All credit-recognition decisions are formally documented.

Thesis

As stated in the regulations, the undergraduate thesis is a compulsory graduation requirement designed to assess students' ability to work independently on a task at the bachelor's degree level. It is intended to demonstrate that students can integrate and apply the knowledge acquired during their undergraduate studies to a defined disciplinary problem. Students are expected to formulate an appropriate research question, apply theoretical and/or experimental methods, interpret their findings, draw substantiated conclusions, and communicate the results in a concise and academically appropriate written report. The written thesis is complemented by an oral examination or defence before an examining committee.

To be eligible to proceed with their thesis, successful completion of the preceding Seminar course with a grade of at least C is required, as well as approval from the academic advisor. The thesis topic is generally expected to continue the work initiated during the Seminar course. The programme appoints a Thesis Coordinator, who ensures consistency in the implementation of the thesis process, monitors supervision and examination requirements, schedules the examinations, issues formal appointments for supervisors and examiners, informs students about the examination procedure, and reports on thesis activities to the study programme and faculty.

Students are supervised by a qualified primary supervisor and may have a co-supervisor, particularly for multidisciplinary topics. Supervision is formally documented and monitored. The thesis is completed through an oral defence before an appointed examination committee.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The experts examine samples of examinations and final projects provided by the programmes under review. For the programmes B.Ed. Mathematics Education, B.Ed. Physics Education and M.Ed. Science Education, which were opened in 2024 and do not

have graduates yet, UNPAR provides samples of the exams and thesis carried out by STKIP Surya students who at the time of unification became UNPAR students.

According to the experts, the documents show that the level of the students' academic performance and the content of the modules are sufficient for the programmes concerned. The final projects are of a very high standard and show that students are able to work independently. They also consider that the number and distribution of examinations ensure an appropriate workload and sufficient time for preparation. However, as remarked above in 1.5, with regard to the Master's programme in Science Education, the experts are of the opinion that the current documentation needs to demonstrate a consistent relationship between the actual workload, the credit allocation, and the academic level of the thesis.

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

See above Criterion 1 with regard to 1.5 Workload.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report (SAR)
- Staff Handbook for each programme
- Module descriptions for each programme
- Human Resources Plan
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The B.Sc. Mathematics programme is supported by 14 full-time lecturers, 50% of whom hold doctoral degrees from domestic (ITB) and international universities (University of Queensland, Twente, UPSI). Two lecturers are certified ASAI (Associate of the Society of Actuaries of Indonesia), and three others are in the process of obtaining certification.

According to the staff handbook, the B.Sc. Physics programme has 14 teaching staff, of whom nine hold doctoral degrees and five hold master's degrees. Among them, eight staff members have obtained at least one academic degree from an overseas institution.

Regarding the programmes in education, the Bachelor's Programme Physics Education has five main teaching staff, comprising two doctoral-degree holder and three master's-degree holders, while, for the Bachelor's Programme Mathematics Education, there are five main teaching staff. All five hold master's degrees as their highest academic qualification. The Bachelor's Programme Chemistry Education has four main teaching staff from which two lecturer holds a doctorate and two hold master's degrees as their highest qualification. The Master's Programme Science Education is supported by five teaching staff, who are holders of doctoral degrees in education and natural sciences.

Academic staff is supported through mandatory certification, regular professional-development workshops, relevant discipline-specific certifications, and team teaching for junior lecturers. Staff qualifications and professional-development activities are documented in the HR Plan and Staff Handbook. All new lecturers must complete the mandatory pedagogical certification (PEKERTI/AA). Continuous Professional Development is driven by the results of the annual performance appraisal and the achievement of Key Performance Indicators (KPI). Training needs identified through peer observations and student feedback lead to targeted workshops on digital pedagogy, assessment design, and research methodology.

During the discussions, the lecturers stated that the opportunities for further qualification and the development of professional and didactic skills are sufficient, and they feel supported by the university. Several lecturers have individual professional-development plans and regularly participate in pedagogical training, seminars on assessment, technical-development programmes, and workshops on teaching methodologies. The university also supports further qualifications that correspond to lecturers' academic and professional interests. Examples include training in data science and preparation for professional certification in actuarial science. UNPAR is described as flexible and open when lecturers apply for such activities. Professional development is also linked to the national academic career system, under which lecturers accumulate credit points through teaching, research, publications, and related academic activities. These achievements support applications for promotion to academic ranks such as associate professor and full professor, subject to government approval.

With regard to lecturer' workload, the teaching staff indicated that the present workload remains manageable despite their involvement in more than one programme or subject area. Teaching responsibilities are distributed within the applicable workload framework,

while student feedback provides an important mechanism for monitoring teaching quality and identifying areas for improvement.

Regarding equipment, the lecturers consider external cooperation particularly important. When specialised equipment is required, the university collaborates with companies, research centres, and other institutions to obtain access to appropriate facilities. In many cases, cooperation with external institutions is preferred to purchasing highly specialised equipment because acquisition costs are substantial and maintenance is expensive. This approach allows staff and students to use advanced infrastructure while avoiding unnecessary duplication of costly equipment.

According to the programme coordinators, students are integrated into research activities where suitable opportunities arise. In some cases, lecturers ensure sufficient funds for their students' research activities and involve students directly in data collection, analysis, or other project tasks. Research collaboration with students appears to be encouraged and integrated into selected projects rather than being mandatory for all students. Collaboration with BRIN and other external partners was also mentioned.

Within the education programmes, future research is expected to focus, among other topics, on educational challenges and societal needs in Indonesia, particularly those related to the large number of teachers and the emerging issues faced by schools, especially in urban areas. Cooperation with partner schools provides access to authentic educational settings and target groups; approximately 20% of the relevant participants or research contacts are associated with partner schools. The cooperation with these schools was described as well established.

The programme coordinators of the educational programmes under review also highlighted that the programme aims to generate research that contributes to improving educational quality. Particular emphasis will be placed on digital education and innovative learning approaches, including potential collaborations with universities in Singapore and other international partners. To strengthen research capacity, closer collaboration will be promoted between the Faculty of Education, the Faculty of Science, and the STEM Research Center. Existing research activities supported by industrial partners, including cooperation with organizations from Taiwan, provide a foundation for expanding future collaborative projects. The programme intends to attract additional support from ministries responsible for science, education, and higher education, as well as from external foundations and industry partners. Furthermore, systematic documentation of research collaborations, joint projects, publications, and funding outcomes will be strengthened to demonstrate research impact and support future grant applications.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The composition and qualifications of the teaching staff are appropriate to ensure the effective delivery and long-term sustainability of all programmes under review. The University and Faculties provide adequate institutional support and offer a range of opportunities for professional, pedagogical, and academic development.

The experts also note that, in the B.Sc. programmes Physics and Mathematics, approximately two-thirds of the faculty members have documented publications or involvement in research projects. The situation is less developed in the education programmes under review, where only a small proportion of the teaching staff have documented publications or research projects. Overall, the number of publications remains very limited, particularly in peer-reviewed international journals.

Therefore, the experts conclude that broader participation and a more consistent level of research activity across the teaching staff of all education programmes under review including the Master's programme in Science Education would be desirable. The panel recommends developing a coherent strategy to strengthen research capacity and international reputation within the mentioned study programmes. Key measures could include greater support for publishing in reputable international journals, increased participation in international conferences, improved access to research funding, and investments in research infrastructure.

Furthermore, the experts encourage the education programmes to strengthen cross-programme and interdisciplinary cooperation, for example through a joint working group involving teaching staff from the Physics Education, Chemistry Education, and Mathematics Education programmes. This group could facilitate the systematic exchange of good practices, address common challenges, and coordinate joint activities in teaching, curriculum development, research, student support, and quality assurance.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report (SAR)
- Student Handbook for each programme
- Student Satisfaction Data
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/

- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:
UNPAR provides a comprehensive range of support services covering the entire student lifecycle. These include individual academic advising, career services such as CV clinics, internship placement and job fairs, accessible healthcare through Klinik Pratama UNPAR in cooperation with St. Borromeus Hospital Bandung, and institutional support for a safe campus environment through the Sexual Violence Prevention and Response Task Force (Satgas PPKS).

New students receive orientation and bridging support, while early-alert mechanisms identify students at academic risk and enable timely intervention. During the transition to employment, tracer studies and career-preparation activities support students' professional readiness.

The effectiveness of these services is monitored through student-satisfaction surveys. According to the surveys' results, academic advising and thesis supervision are rated positively, while identified areas for improvement such as longer library opening hours and better access to scholarship information are addressed through appropriate faculty measures.

Students reported consistently positive experiences with academic advising across the programmes under review. Advisors were described as approachable, flexible, and highly supportive, including in relation to participation in international conferences. Consultations were generally easy to arrange, and students could contact their advisors without significant difficulty. Each programme also has a student representative who serves as an additional contact for communicating concerns or problems. Students confirmed that changing an academic advisor is possible where necessary, following consultation with the head of the relevant department.

Students state that targeted support mechanisms are in place to assist them with academic or personal challenges. Students from remote or rural areas who may require additional time to adjust to university-level study receive introductory and continuing academic support. In addition, students with disabilities benefit from appropriate facilities, including a dedicated room and support adapted to their individual needs. For example, students report that there is a student requiring an oxygen cylinder who is accompanied by dedicated laboratory staff when conducting laboratory activities. However, students are

not aware of the advertised career services, including CV clinics, internship matching, and job fairs. This indicates a communication or visibility gap.

The experts learn during the on-site visit that a scholarship programme for students of the Master's programme Science Education is in place. In addition, the university offers scholarships for students with disabilities and plans to expand scholarship opportunities for students from economically disadvantaged and remote areas.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

Students feel well supported by the university and their lecturers, and they consider their needs and interests to be taken seriously. The experts acknowledge UNPAR's responsiveness to student feedback and consider the existing guidance and mentoring system adequate. The range of support measures, the committed and reflective attitude of the teaching staff, and the university's scholarship programmes contribute to students' achievement of the intended learning outcomes and support timely and successful completion of their studies. However, the experts note that more regular and systematic communication of professional development opportunities may help students benefit from the support available.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report (SAR)
- Student Handbook for each programme
- Student Satisfaction Data
- Cooperation Agreements
- Financial Overview
- Visitation of the facilities
- Discussion during the audit

Preliminary assessment and analysis of the experts:
According to the university, the programmes under review are supported by a sustainable financial model. UNPAR provides an overview of the financial performance and medium-term planning for each programme. The submitted data demonstrate that financial resources are allocated to all programmes and that the budgets of the education programmes generally recovered or expanded in 2024/25.

During the discussion on-site, the rectorate stated that approximately half of the university's income is generated from sources other than tuition fees. As Indonesian regulations restrict the university from entering into certain commercial contracts directly, the foundation or an affiliated company may facilitate relevant partnerships and projects.

The rectorate acknowledged the very low student intake in some science programmes. Its long-term sustainability strategy focuses on curriculum development, stronger promotion, industry collaboration, and the expansion of research-based activities. The university regards these programmes as having considerable future potential and expects international accreditation to strengthen their reputation and attractiveness. Scholarships for students from economically disadvantaged and remote regions are another instrument for widening access and potentially increasing enrolment.

It was also emphasized that programme budgets are not allocated solely according to student numbers. Annual allocations reflect the university's strategic priorities and consider additional variables such as programme needs, external grants, cooperation agreements, and laboratory requirements. Laboratory provision follows a largely centralised and shared model. Chemistry-related facilities, for example, may serve several programmes and external stakeholders, including Chemical Engineering, Chemistry Education, and medical fields. This model helps optimise the use of expensive equipment, although the rectorate recognises the value of establishing dedicated facilities where academically and financially feasible. International accreditation is optional but forms part of the university's broader development strategy.

In the short and long term, UNPAR intends to increase funding and resources by strengthening cooperation with industry and other external partners, engaging alumni working in relevant industries, and developing international partnerships. Cooperation with Korean partners may support the acquisition of laboratory equipment. The rectorate also intends to explore the commercial use of laboratory capacity by offering laboratory services and facilities to external users. Taken together, these measures are intended to diversify income, improve infrastructure, and reduce reliance on tuition fees.

UNPAR's learning Infrastructure includes classrooms, lecture theatres, a multifunctional hall, and an auditorium for large-group teaching, seminars, public lectures, and institutional events. Students also have access to the Parahyangan Reksa Raga (PASAGA) sports facilities and a university vehicle service supporting activity-related mobility. Facility quality and student satisfaction are monitored through the satisfaction surveys. Recent investments include renewed laboratory safety equipment and hybrid-learning technology in classrooms.

During the audit, students generally consider the available laboratory infrastructure sufficient to complete their programmes successfully. They reported having access to a broad range of equipment that enables them to understand course content and acquire practical skills. Furthermore, they stated that the literature required for their courses is generally accessible. Lecturers provide relevant materials used in class. Additional digital learning resources are also available. Students mainly use open-access software, including Python and other freely available tools, which can generally be accessed both on and off campus. MATLAB does not appear to be routinely available to or used by Mathematics students and is used primarily by lecturers.

Access to library resources and international academic literature is available to students. The experts observe during the site visit that the library provides a computer workstation for searching the library catalogue and accessing academic databases, including ProQuest, which offers a wide range of scholarly journals, books, news sources, dissertations, and theses. Students report, however, that some journal articles are not directly accessible through their accounts or via open access. In such cases, supervisors assist them in obtaining the required publications.

During the on-site visit, the experts inspect the university's facilities and laboratories. The Basic Physics Laboratory and General Chemistry Laboratory serve as shared core facilities for foundational modules in the B.Sc. and B.Ed. programmes. The laboratories are also equipped with first-aid boxes, available every 15 meters for safety purposes. Programme-specific infrastructure includes the Advanced Physics Laboratory and Electronics and Instrumentation Laboratory for B.Sc. Physics, as well as the Modelling and Simulation Laboratory and Computational Laboratory for B.Sc. Mathematics. The Modelling and Simulation Laboratory is well equipped with five computers, a smart TV, and a whiteboard. The computers have various software installed, including MATLAB, Maple, R, Anaconda, and TeamViewer, which enables remote access to the laboratory computers. The laboratory is managed by a Head of Laboratory with the support of several student assistants. Meanwhile, the Computational Laboratory provides more than 50 computers, offering substantial capacity for student use. However, students are required to obtain permission in advance to use the laboratory for assignments and research.

The education programmes use a Microteaching Laboratory for peer-teaching simulations and a Pedagogical Media Laboratory for developing and testing instructional materials. The provision of dedicated Microteaching and Pedagogical Media Laboratories for education programs (B.Ed.Physics, Math, Chemistry) directly supports 21st-century competency development and the application of UNPAR’s LABIRIN approach (fun, interactive, unique learning). The laboratory infrastructure across the Science Cluster reflects a solid foundation for both pure science inquiry and teacher education. The integration of

specialized pedagogical labs alongside traditional experimental facilities ensures that graduates are well-prepared for industry, academic, and secondary school environments. Continuous monitoring of equipment maintenance logs and software licensing updates will further strengthen long-term sustainability.

The experts learn during the discussions on-site that there are lab assistants but not dedicated technicians in the Physics labs. At present, academic staff are responsible for preparing, maintaining, troubleshooting, and repairing laboratory equipment. Dedicated lab technicians are available for the chemistry labs ensuring preparation of the labs, maintenance of the equipment and adequate waste management is in place and has not to be carried out by the scientific staff.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

UNPAR has secure funding and reliable financial planning. The infrastructure is adequate and rooms for self-learning and group work are adequate.

The experts highlight that the UNPAR campus and environment are very modern, clean and appropriate for teaching and learning. In addition, it is highlighted that the labs are adequate for teaching. The microteaching lab is very well designed and equipped to enhance the teaching skills of prospective teachers. Overall, the combination of shared core laboratories, programme-specific facilities, and university-wide infrastructure provides an appropriate basis for teaching and practical learning across the programmes under review. With regard to B.Sc. Mathematics programme, the collaboration with the Society of Actuaries of Indonesia was considered very valuable for the programme.

However, the experts conclude that the physics labs need to be supported by lab technicians to reduce possible additional burden on lecturers and make sure maintenance efficiency, equipment availability, and laboratory safety. In addition, based on the students' feedback, access to essential learning materials appears adequate, but direct student access to international literature, both journals and books, and specialised software could be improved.

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

Regarding student support, UNPAR states that the Student Affairs/Career Centre will communicate its services each semester through the programmes' channels (social media, LMS); the communication plan takes effect in the odd semester 2026/27. The experts are satisfied with these measures.

In addition, with regard to Criterion 3.3, the university clarifies that all physics laboratories are supported by a permanently employed Head Laboratory Technician. The technician's responsibilities include preparing experiments, maintaining equipment, and carrying out or arranging repairs, with additional support provided by trained student assistants. As this role was not sufficiently communicated during the audit, the university has also formally requested the establishment of a dedicated technician position for the Advanced Physics Laboratory to further strengthen maintenance efficiency, equipment availability, and laboratory safety. The experts appreciate the explanations provided by UNPAR and consider the issue resolved.

4. Transparency and Documentation

Criterion 4.1 Module descriptions

Evidence:

- Self-Assessment Report (SAR)
- Curriculum Handbook for each programme
- Module descriptions for each programme
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The module handbooks for all degree programmes under review are available via the IDE Learning Management System (LMS) and published on the university's website and thus accessible to the students as well as to all stakeholders in both Indonesian and English language.

The description for each module includes: (1) Module title, (2) Coordinator, (3) Teaching methods, (4) Workload (SKS/ECTS), (5) Intended Learning Outcomes (ILOs), (6) Content, (7) Admission/Exam requirements, (8) Grading policy, (9) Literature, and (10) Date of last amendment.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The module descriptions are accessible and contain the required information for each module.

Nevertheless, the experts note inconsistencies and missing information in the module descriptions provided for all programmes under review. For example, the Curriculum Handbook and Module Description of the B.Sc. Physics programme use inconsistent module titles, e.g. “Basic Physics” versus “General Physics”. Regarding the Physics Education programme, several module descriptions lack sufficient detail. With regard to the module descriptions of Chemistry Education programme, not all mandatory and elective courses are included. For B.Sc. Mathematics, the module descriptions are, in some cases, incomplete and not consistent, particularly for elective modules. For example, the module “Accounting for Actuarial Science” appears to lack essential information on teaching methods, learning outcomes, content, assessment, and recommended literature. In addition, the module descriptions for all programmes except for the B.Sc. Mathematics are unstructured and would benefit from a table of contents, clearer organization, and consistent terminology. Therefore, the experts conclude that the module handbook for all programmes under review should be reviewed and updated. In addition, for the Bachelor’s programme Chemistry Education and the B.Sc. Mathematics, the literature in the module descriptions should be revised and updated. Furthermore, the experts consider that greater transparency could be achieved by providing more detailed information in the module descriptions on the role of tutorial groups within the curriculum, including their purpose, format, responsible staff, workload and corresponding SKS credits, as well as their connection to relevant courses and assessments.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report (SAR)
- Sample Graduation Certificate for Bachelor’s programmes
- Sample Diploma Supplement for Bachelor’s programmes
- Sample Transcript of Records for Bachelor’s programmes
- Diploma Supplement Guideline (SKPI)

Preliminary assessment and analysis of the experts:

As stated in the SAR, graduates of the programmes under review receive a graduation certificate, a transcript of records and a diploma supplement (SKPI), which is issued in English and Indonesian. The university provides samples of these documents for all Bachelor’s programmes under review. Samples for the Master of Science Education Programme are missing.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The diploma supplements of the Bachelor's programmes under review do not include data on the GPA distribution of graduates in the same cohort. This information should be included in the diploma supplement to ensure fair transfer and recognition of grades for mobile students. The experts ask UNPAR to submit samples of the graduation certificate and diploma supplement for the Master of Science Education Programme.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report (SAR)
- Student Handbook
- All relevant regulations
- Website UNPAR: https://unpar.ac.id/
- Website Faculty of Science: https://unpar.ac.id/en/faculties-and-programs/science/
- Website Faculty of Education: https://unpar.ac.id/en/faculties-and-programs/education/

Preliminary assessment and analysis of the experts:
As stated in the SAR, students are provided with student handbooks which contain requirements concerning attendance, assessment, academic progression, and academic integrity. A detailed curriculum handbook for each programme is also available.

Regulations are available through the Student Portal and the UNPAR Integrated Service portal. Changes are communicated formally by email and portal announcements, supporting transparency and consistent access to current information.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The rights and obligations of both UNPAR and its students are clearly defined, binding, and readily accessible to students and teaching staff. Furthermore, students have access to all relevant course-related information for the Bachelor's programmes under review.

However, regarding the Master's programme in Science Education, the experts note that no student handbook is currently available. They therefore conclude that all relevant study-related regulations need to be publicly available and accessible to all stakeholders in a consistent and transparent manner. In particular, the documentation should clearly define

the programme's primary target group and objectives. The programme's mode of study should also be clarified, including whether it is intended to be offered on a part-time basis.

In addition, for all programmes, the student handbooks could enhance transparency by providing clearer information on the integration of tutorial groups into the curriculum including their purpose, format, responsible staff, workload and corresponding SKS credits, as well as their connection to relevant courses and assessments (see below 4.1).

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

Regarding Criterion 4.1, the university has submitted updated module handbooks for all programmes under review, addressing inconsistencies, missing or incomplete module descriptions, outdated literature, and structural differences. Course titles have been harmonised with the study plans, missing descriptions have been added, reading lists have been updated, and common structural elements have been introduced across the programmes.

The experts acknowledge the improvements resulting from the revision of the module handbooks. However, they note a minor editorial issue in the Mathematics module handbook: the duplicate module code assigned to the Integrated Study-Work Programme and the Teaching Programme in 3T Areas should be corrected. As the revised module handbooks have not yet been implemented and published, the recommendation is maintained (see E9). The experts also appreciate the updated literature lists; the corresponding recommendation remains as advice for their continued review and updating (see E12).

With regard to Criterion 4.2, UNPAR has submitted a Diploma Supplement issued for the Master's programme. A revised Diploma Supplement template containing the cohort GPA distribution was scheduled to be issued by 30 September 2026. However, the statistical data concerning GPA distributions have not yet been included for any of the programmes, as required under ASIIN Criterion 4.2. Therefore, the requirement is maintained (see A3).

Regarding the Student Handbook for the Master's programme, the experts appreciate the revised version submitted by UNPAR. Nevertheless, they consider that important information is still missing, including information on the target group and mode of study.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report (SAR)
- Quality Management Handbook
- University Development Plan
- Samples student surveys
- Report surveys results
- Discussion druing the audit

Preliminary assessment and analysis of the experts:
UNPAR applies a university-wide quality assurance system based on the national PPEPP cycle: planning, implementation, evaluation, control, and improvement. Responsibilities are clearly distributed among the foundation, senate, rectorate and Quality Assurance Institute as well as faculties, programmes, staff, and students.

Quality is monitored through student module evaluations (EDOM), graduate and tracer surveys, annual internal quality audits (AMI), examination moderation, and peer observation of teaching. The results are discussed in formal management review meetings, converted into action plans with assigned responsibilities, and monitored each semester. Identified gaps lead to documented corrective actions, while evaluation results inform the revision or development of standards for the next cycle.

Recent actions resulting from this process include revising module sequence and workload, introducing assessment blueprints and calibrated rubrics, improving the IDE Learning-Management System, providing targeted staff training, and expanding academic advising and tutoring. The university evaluates the effectiveness of these measures through student-satisfaction trends, assessment-moderation records, and the documented closure of audit findings.

The feedback process involves students, lecturers, external partners, and university management. Results are discussed with staff and management and communicated to students through semester evaluation meetings, student representatives, notice boards, and programme communication channels. Quality-assurance findings are then used to adjust teaching, assessment, student support, facilities, and funding priorities.

Separate surveys are also conducted among lecturers, administrative personnel, and other employees. The results are analysed in formal reports, and identified issues lead to follow-up measures that are reviewed in the next evaluation cycle. Mid-cycle reviews provide an additional opportunity to monitor implementation, while external oversight is provided through national accreditation.

The students interviewed confirmed that they complete questionnaires at mid-semester and at the end of each semester to evaluate lecturers and provide comments on the courses. However, they are generally not informed about the evaluation results or the measures taken in response.

In their summative evaluation of this criterion, the ASIIN expert team comes to the following conclusions:

The overall quality management system is effective in identifying weaknesses and improving programmes. All stakeholders are involved in the process. The results of these processes are incorporated into the continuous development of the programme. Processes and responsibilities seem to be well defined for the further development of the programme. However, the experts conclude that the results of the courses evaluations (EDOM) need to be communicated to the students to ensure transparency and visibly closing the feedback loop.

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

UNPAR explains that the Quality Assurance Office (LPM) will formalise a standard procedure for communicating evaluation results to students each semester, with initial implementation planned for the odd semester of 2026/27. The SOP and evidence from the first evaluation cycle will be submitted as fulfilment documentation by 31 October 2026. The experts appreciate these explanations; however, as the measures have not yet been implemented, they maintain the requirement for all programmes (see requirement A5).

E Additional Documents

Before preparing their final assessment, the panel notes the following additional documents and information, including material already provided and material still to be submitted together with the comment of the Higher Education Institution:

1. The requested additional information on graduate numbers and job-market distribution for the B.Sc. Mathematics has been provided. Since the four specialisations were introduced with the 2023 curriculum, graduate employment data differentiated by specialisation are not yet available. The 2022 alumni survey instead provides the labour-market evidence on which the specialisation structure was based.
2. Sample/template of the Diploma Supplement for the Master's programme in Science Education.

F Comment of the Higher Education Institution (20.08.2026)

The following quotes the comment of the institution:

“A. Introduction

UNPAR thanks the expert panel for the thorough review and constructive report. This statement responds to the issues raised, following the order of the report’s criteria. In line with ASIIN’s instruction, responses are kept short and do not repeat the SAR; supporting evidence is submitted as separate files and referenced as Annex 01–11 (list in Part E).

B. Factual corrections to the report

1. Date of SAR submission (p. 3): the report states “02.10.2026”; the SAR was submitted on **10 February 2026**. The date appears to be a day–month transposition.

2. Mode of study, M.Ed. Science Education (Table B, p. 5 vs pp. 19–20, 56): the programme is registered nationally (PDDikti) as a **regular (full-time) programme** whose teaching is scheduled in late-afternoon/evening blocks to accommodate in-service teachers; no separately registered part-time track exists, and the arrangement implies no reduction of curriculum, workload, assessment standards, or qualification level. References to a “part-time organisation” should be read accordingly (see also Criterion 1.1).

3. Table B, B.Sc. Mathematics: the four specialisations (Actuarial Science; Data Analytics; Optimization and Dynamics; Pure and Educational Mathematics) belong to the B.Sc. Mathematics row; their placement in Table B should be corrected.

4. Technical Committees (p. 4): the Subject-Specific Criteria of Technical Committee 09 (Chemistry), applicable to the B.Ed. Chemistry Education programme, are not listed; we kindly ask that TC 09 be included in the final report.

5. Credit total, B.Ed. Chemistry Education (Table B p. 5 vs Criterion 1.5 p. 38): following the 2026 Curriculum Addendum (adjusting the Student Development course from 3 to 2 credits), the official total is **144 SKS (240 ECTS)**; the addendum and corrected overview are attached (Annex 10).

6. Credit conversion: the official factor is 1 SKS = 5/3 ECTS (≈ 1.667), not 1.66; totals in Table B follow from this factor.

C. Responses to the issues raised, by criterion

Criterion 1.1 — Objectives and learning outcomes

Experts' observation *(p. 19): the programme learning outcomes are formulated in rather general terms and need to be specified more clearly; the M.Ed. programme documentation requires substantial revision (target group, objectives, emphasis, mode of study).*

Response: The objective–module matrices of several programmes have been updated (Annex 02). For the M.Ed. programme, the programme profile and intended learning outcomes have been substantially revised: the profile now explicitly states the target group (in-service science teachers), the professional and personal-development objectives, the emphasis on pedagogy and science education, and the mode of study and scheduling (Annex 06). For the Bachelor's programmes, the discipline-specific sharpening of the PLOs is formally assigned to the 2028 Curriculum Development Teams: the B.Sc. Mathematics team was established by Assignment Letter No. III/FS/2026-04/0552-ST of 24 April 2026 — before the audit — and by letter No. III/FS/2026-08/1151-I of 20 August 2026 the Dean of the Faculty of Science is coordinating with the Dean of FKIP the incorporation of the ASIIN follow-up details into the assignment of every programme's team, with nominations for the B.Sc. Physics team formally requested (Annex 03); the B.Ed. Physics Education programme has already drafted its ten revised PLOs for the 2028 curriculum (Annex 02).

Criterion 1.3 — Curriculum

Experts' observation *(p. 28): the curricula need to be arranged in a more coherent manner.*

Response: Curriculum coherence — progression, reduction of redundancies, FTIS–FKIP synergies, and the share of non-STEM credits — is the first cluster-wide item of the ASIIN follow-up details embedded in the 2028 Curriculum Development Teams' assignments (Assignment Letter No. III/FS/2026-04/0552-ST for B.Sc. Mathematics; Dean's letter No. III/FS/2026-08/1151-I with its follow-up appendix; Annex 03), with milestones: coherence review in the odd semester 2026/27, faculty decisions in 2027, adoption of the 2028 curriculum early 2028, implementation 2028/29. The teams report progress every semester; these reports will serve as fulfilment evidence.

Experts' observation *(pp. 29–30): core physics subjects (Electrodynamics, Quantum Physics, Nuclear Physics) are electives in the B.Ed. Physics Education programme and need to be mandatory.*

Response: UNPAR accepts this finding. Following the Programme's formal curriculum-review proposal of 1 June 2026, approved by the Dean of the Faculty of Teacher Training and Education on 3 June 2026, Special Relativity, Quantum Physics, Nuclear and Particle Physics, Electrodynamics, and Statistical Physics will be **mandatory courses** in the 2028 curriculum, which applies to all students still active when the curriculum starts; the proposal, approval, and 2028 curriculum design documents are attached (Annex 08). The same redesign

strengthens Modern Physics content and relocates the Olympiad courses to an optional concentration track, as suggested by the experts (recommendation).

Experts' observation *(p. 29, recommendations): LABIRIN as one approach among several; empirical evaluation; splitting the Pure/Educational Mathematics specialisation; more electives (Chemistry Education); modular structure (M.Ed.); shared courses; expanded teaching practice incl. special needs; minimum-participant threshold.*

Response: These recommendations are answered through the same instrument: the ASIIN follow-up details incorporated in the 2028 Curriculum Development Teams' assignments (Annex 03) explicitly cover — per programme — the review of the Pure and Educational Mathematics split (decision within the cycle), the phased expansion of Chemistry Education electives and synergies with Chemical Engineering, a more modular and flexible M.Ed. structure with matriculation pathways, shared courses between B.Sc. Physics and Physics Education, the repositioning of LABIRIN as one of several evidence-informed approaches together with its empirical evaluation in authentic classrooms, the expansion of school-based teaching practice including exposure to learners with special educational needs, and the minimum-enrolment threshold for electives — for which an existing mechanism already applies: modules required for student progression may be exempted from the general threshold through the standing approval procedure (Directorate decision: Annex 11). Two further points of current practice: cooperation with Chemical Engineering already includes team teaching in chemistry-content and practicum modules, and LABIRIN is being integrated as one of several approaches within Physics Lesson Design, Physics Teaching Methodology and Physics Learning Media, while Inclusive Education, Physics Curriculum and Microteaching explicitly address learners with special educational needs. The Pure/Educational Mathematics split will be carefully considered by the 2028 Curriculum Development Team of the B.Sc. Mathematics. We confirm that specialisation-specific employment data of the B.Sc. Mathematics are not yet available because the first cohorts of the 2023 curriculum have not graduated (cf. Part D item 1).

Experts' observation *(pp. 31–32, recommendation): international mobility of students should be supported and communicated.*

Response: The Directorate of International Affairs, Partnership, and Alumni now circulates mobility opportunities to students each semester through the programmes' channels. Existing partnerships — including Hasselt University and Universiti Malaysia Pahang Al-Sultan Abdullah (MoUs: Annex 11) — will be used to develop outbound and inbound mobility and alternative funding routes.

Criterion 1.4 — Admission requirements (M.Ed.)

Experts' observation *(pp. 36–37): admission prerequisites are not sufficiently defined.*

Response: Programme-specific admission provisions have been drafted for formal issuance: accepted Bachelor's backgrounds (science and science-education degrees), professional prerequisites, and matriculation for cross-disciplinary applicants. The draft provision has been submitted to the university leadership; issuance is scheduled for September 2026. The revised M.Ed. Student Handbook (Annex 06) already contains the corresponding admission chapter.

Criteria 1.5 and 2 — Workload and credits; thesis (M.Ed.)

Experts' observation *(pp. 39–40, 45): the 6-SKS thesis allocation requires explicit justification — either substantiate convincingly or adjust.*

Response: UNPAR substantiates the allocation quantitatively. The thesis (6 SKS × 45 h = **270 hours**) is the sole component of Semester 4, in which no other courses are scheduled; 270 hours correspond to approximately 12–14 weeks at 20–24 hours per week within the semester calendar — a realistic full-attention research load for the registered regular programme. The thesis is embedded in a supervised research pathway totalling 20 SKS across the curriculum (methodology, statistics, reviews of research findings, instrument development), so that the 6 SKS reflect the final research and writing stage only. Master's-level distinction from the Bachelor's final project is defined through outcomes and assessment rubrics, now visible in the revised module descriptions (Annex 01f). The same figures are stated identically in the revised handbook and programme profile. In addition, the programme will document actual thesis workloads through supervision records during 2026/27, keeping the allocation evidence-based.

Criterion 1.6 — Tutorials (responsi)

Experts' observation *(p. 41): the role of tutorial groups should be documented.*

Response: Tutorials (responsi) are an embedded component of the credited course workload (marked "R" in the curricular overviews), not additional uncredited hours. The revised module handbooks of all programmes now document their purpose, format, responsible staff, position within the 45 h/SKS envelope, and relation to assessment in a standard section (Annex 01).

Criterion 3.1 — Staff (research, FKIP programmes)

Experts' observation *(p. 48): research capacity should be strengthened; a cross-programme working group is suggested.*

Response: The Dean of FKIP will issue a 2026–2028 research-strategy outline (publication incentives, collaboration with the STEM Research Centre) and the founding note of a cross-programme working group of the education programmes by 30 September 2026.

Criterion 3.2 — Student services / career guidance

Experts' observation *(p. 50): students are not always aware of existing career services.*

Response: The Student Affairs/Career Centre will communicate its services each semester through the programmes' channels (social media, LMS); the communication plan takes effect in the odd semester 2026/27.

Criterion 3.3 — Facilities: laboratory support

Experts' observation *(p. 53): the physics labs need to be supported by lab technicians to relieve academic staff and ensure maintenance efficiency, equipment availability, and laboratory safety.*

Response: UNPAR would like to clarify that the physics laboratories are supported by a dedicated, permanently employed laboratory professional: the **Head Laboran of the Physics Laboratories** (Mrs. Neng Putri Lestari Nugraheni, S.Si., publicly listed on the Department's website), whose responsibilities cover all physics laboratories and include the preparation of experiments, routine equipment care, and carrying out or arranging repairs, assisted by trained student assistants — the assistants the experts met on-site. UNPAR regrets that this role was not made sufficiently explicit during the audit. To further strengthen support in line with the experts' three aims, the Dean of the Faculty of Science has formally requested the Vice Rector for Finance, Resources, and Organization, by letter No. III/FS/2026-07/1001-I dated 1 July 2026, to establish an additional dedicated technician position for the Advanced Physics Laboratory (letter, Head-Laboran duty description and staff profile: Annex 05).

Experts' observation *(p. 53, remark): access to international literature and specialised software could be improved.*

Response: The computational laboratory provides MATLAB with remote access; the Library and IT unit will document current licences and access routes and issue an access-improvement note by 30 September 2026.

Criterion 4.1 — Module descriptions

Experts' observation *(pp. 54–55): module handbooks of all programmes should be reviewed and updated; named examples: inconsistent titles (B.Sc. Physics, "Basic" vs "General Phys-*

ics"), incomplete coverage (Chemistry Education), empty elective entry "Accounting for Actuarial Science" (B.Sc. Mathematics), insufficient detail (Physics Education); literature to be updated (Chemistry Education, B.Sc. Mathematics).

Response: All six module handbooks have been revised and are attached (Annex 01a–f). Specifically: the B.Sc. Physics Student Handbook and Module Descriptions now use the official course titles consistently (all 28 occurrences of "General Physics" corrected to "Basic Physics") and the two previously missing modules (Final Project 2; Entrepreneurship) have been added, completing coverage of the study plan (Annex 01a, 04); the Chemistry Education handbook now covers all mandatory and elective courses, with reading lists updated (Annex 01e); the "Accounting for Actuarial Science" description has been completed and the B.Sc. Mathematics reading lists updated (Annex 01b); the Physics Education handbook has been re-exported as a searchable text document with completed descriptions (Annex 01c); the Mathematics Education and M.Ed. handbooks have been aligned in structure and titles (Annex 01d, 01f). Across the cluster, the handbooks now share a table of contents, a standard tutorial section, dates of last amendment, and titles harmonised with the study plans.

Criterion 4.2 — Diploma and Diploma Supplement

Experts' observation *(p. 55): Bachelor Diploma Supplements do not state the cohort GPA distribution; samples of the graduation certificate and Diploma Supplement of the M.Ed. programme are requested.*

Response: The requested samples are attached (Annex 07): the M.Ed. graduation certificate and the M.Ed. Diploma Supplement (SKPI No. III/SKPI-810/2026/004, legalized 7 April 2026, i.e. before the report was issued; bilingual, stating the programme learning outcomes and KKNI Level 8; personal data redacted, marked SAMPLE). Regarding the GPA distribution, the Bureau of Academic Administration will issue a revised Diploma Supplement template including the cohort grade distribution by 30 September 2026.

Criterion 4.3 — Relevant rules and regulations (M.Ed.)

Experts' observation *(p. 56): the programme-specific regulations need to be publicly available.*

Response: The M.Ed. Student Handbook has been revised (target group, mode of study, admission, progression, assessment aligned with university regulation) and formally issued; it is publicly available at https://fkip.unpar.ac.id/en/master-of-science-education/ (Annex 06).

Criterion 5 — Quality management

Experts' observation *(p. 58): results of the course evaluations (EDOM) need to be communicated to the students.*

Response: The Quality Assurance Office (LPM) will formalise a standard procedure for communicating evaluation results to students each semester, with first implementation in the odd semester 2026/27; the SOP and first-cycle evidence will be provided as fulfilment documentation by 31 October 2026.

D. Additional documents noted in Part D of the report

1. Graduate and labour-market data, B.Sc. Mathematics: this information was submitted after the audit, as recorded in the report; we confirm that the data provided are final.

2. Samples of the M.Ed. graduation certificate and Diploma Supplement: attached as Annex 07 (see Criterion 4.2).

E. List of annexes (https://drive.google.com/drive/folders/1RYnteFzHbnG4GyCK2C1_sByk4O2_91YC?usp=drive_link)

Annex 01a–f — Revised Module Handbooks: (a) B.Sc. Physics; (b) B.Sc. Mathematics; (c) B.Ed. Physics Education; (d) B.Ed. Mathematics Education; (e) B.Ed. Chemistry Education; (f) M.Ed. Science Education

Annex 02 — Updated objective–module matrices; revised M.Ed. ILOs; draft PLO set 2028 (Physics Education)

Annex 03 — 2028 Curriculum Teams: Assignment Letter No. III/FS/2026-04/0552-ST (B.Sc. Mathematics, 24 April 2026); Dean's coordination letter No. III/FS/2026-08/1151-I of 20 August 2026 with the ASIIN follow-up details appendix; team-nomination request letter (B.Sc. Physics); university curriculum-development guidelines

Annex 04 — Revised B.Sc. Physics Student Handbook

Annex 05 — Laboratory support: Dean's letter No. III/FS/2026-07/1001-I of 1 July 2026; Head-Laboran duty description; public staff profile

Annex 06 — M.Ed. package: revised programme profile & ILOs; revised and issued Student Handbook (with publication URL); draft admission provision; thesis workload substantiation

Annex 07 — M.Ed. samples: graduation certificate; Diploma Supplement/SKPI (redacted, marked SAMPLE)

Annex 08 — B.Ed. Physics Education: 2028 curriculum overview; curriculum-review proposal (1 June 2026) and Dean's approval (3 June 2026)

Annex 09 — Shared-courses discussions between B.Sc. Physics and B.Ed. Physics Education (Indonesian and English versions)

Annex 10 — The 2026 Chemistry Education curriculum addendum (144 SKS) and corrected overviews; elective schedules

Annex 11 — Supporting evidence: Directorate decision on the minimum-enrolment exemption; MoUs with Hasselt University and Universiti Malaysia Pahang Al-Sultan Abdullah"

G Summary: Expert recommendations (09.09.2026)

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Physics	With requirements for one year	30.09.2032
Ba Physics Education	With requirements for one year	30.09.2032
Ba Mathematics	With requirements for one year	30.09.2032
Ba Mathematics Education	With requirements for one year	30.09.2032
Ba Chemistry Education	With requirements for one year	30.09.2032
Ma Science Education	With requirements for one year	30.09.2032

Requirements

For all degree programmes

A 1. (ASIIN 1.1) Ensure that the intended learning outcomes of the programme are described briefly and concisely.

A 2. (ASIIN 1.3) Arrange the modules in a coherent manner to ensure the achievement of the learning outcomes.

A 3. (ASIIN 4.2) Ensure that the Diploma Supplement provides statistical data on the distribution of final grades, as set out in the ECTS Users' Guide.

A 4. (ASIIN 5) Ensure that students are informed about the evaluation results.

For the Bachelor's degree programmes Physics Education, Mathematics Education and Chemistry Education and Master's programme Science Education

A 5. (ASIIN 1.3) Make sure to teach a broader range of internationally established educational concepts and teaching approaches and reduce the emphasis on science Olympiads.

For the Bachelor's degree programme Physics Education

A 6. (ASIIN 1.3) The electives modules Electrodynamics, Quantum Physics and Nuclear Physics need to be made compulsory.

For the Master's programme Science Education

A 7. (ASIIN 1.1) Ensure that the intended learning outcomes adequately cover the subject-specific and professional competences that graduates are expected to achieve.

A 8. (ASIIN 1.4) Ensure that the admission requirements and procedures are clearly defined and published, and that they are accessible to all stakeholders. They must ensure that admitted students possess the academic and professional prerequisites necessary to achieve the intended learning outcomes and must be consistent with the programme's defined target group and profile.

A 9. (ASIIN 1.5) Evaluate the student workload and award credits accordingly. Ensure that the workload is distributed evenly across the semesters.

A 10. (ASIIN 4.3) Ensure that all relevant study-related regulations are publicly available and accessible to all stakeholders in a consistent and transparent manner.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to diversify the teaching methods used.

E 2. (ASIIN 1.3) It is recommended to reduce the proportion of courses entirely unrelated to STEM.

E 3. (ASIIN 1.3) It is recommended to strengthen the internationalisation strategy by expanding student mobility and structured cooperation with foreign partner institutions (e.g. exchanges and guest/visiting lecturers).

E 4. (ASIIN 3.3) It is recommended to make sure that students have more access to software and to international literature, both journals and books.

For the Bachelor's programme Mathematics

E 5. (ASIIN 1.3) It is recommended to reconsider the profile of the current specialization "Pure and Educational Mathematics" and to explore a clearer differentiation

between a pathway focused on Pure Mathematics and one with a stronger orientation towards Mathematics Education.

For the Bachelor's degree programmes Physics Education, Mathematics Education and Chemistry Education and Master's programme Science Education

E 6. (ASIIN 1.3) It is recommended to ensure that the curriculum allows for more practical experience for teaching real school students and students with special needs.

E 7. (ASIIN 3.1) It is recommended to establish stronger cross-program and interdisciplinary cooperation, for example, by establishing a common working group of the Mathematics, Physics and Chemistry education programmes Faculty teaching staff on good practice, common problems, etc.

E 8. (ASIIN 3.1) It is recommended to develop a strategy for developing research activity both in breadth and quantity in the education programmes.

For the Bachelor's degree programmes Physics and Physics Education

E 9. (ASIIN 4.1) It is recommended to review and make more specific the module descriptions.

For the Bachelor's degree programme Physics Education

E 10. (ASIIN 1.3) It is recommended to put a stronger emphasis on Modern Physics.

E 11. (ASIIN 1.3) It is recommended to share more courses with the B.Sc. Physics programme.

For the Bachelor's programmes Chemistry Education and Mathematics

E 12. (ASIIN 4.1) It is recommended to update the literature in the module descriptions.

For the Master's degree programme Science Education

E 13. (ASIIN 1.3) It is recommended to make the Master's programme more modular and flexible in order to accommodate the different academic and professional backgrounds of its participants.

H Comment of the Technical Committees (14.09.2026)

Technical Committee 09 – Chemistry, Pharmacy (08.09.2026)

Assessment and analysis for the award of the ASIIN seal:

The TC discuss the procedure and follows the experts' assessment without changes.

The Technical Committee 09 – Chemistry, Pharmacy recommends the award of the seals as follows:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**
Ba Chemistry Education	With requirements for one year	30.09.2032
Ma Science Education	With requirements for one year	30.09.2032

Technical Committee 12 – Mathematics (01.09.2026)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and makes two amendments. Recommendation E1 of the review panel's assessment concerning the diversification of teaching methods is deleted, as the teaching methods are assessed as appropriate and diverse in the report.

Requirement A5 of the review panel's assessment is divided into two parts: The requirement to cover a broader range of internationally established didactic concepts and teaching approaches remains a requirement. By contrast, the requirement to reduce the emphasis on Science Olympiads is endorsed by the Technical Committee only as a recommendation.

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Mathematics Education	With requirements for one year	30.09.2032
Ba Mathematics	With requirements for one year	30.09.2032
Ma Science Education	With requirements for one year	30.09.2032

Requirements

For the Bachelor's degree programmes Physics Education, Mathematics Education and Chemistry Education and Master's programme Science Education

A 5. (ASIIN 1.3) Make sure to teach a broader range of internationally established educational concepts and teaching.

Recommendations

~~E 1. (ASIIN 1.3) It is recommended to diversify the teaching methods used.~~

E 6. (ASIIN 1.3) It is recommended to reduce the emphasis on science Olympiads.

Technical Committee 13 – Physics (14.09.2026)

Assessment and analysis for the award of the ASIIN seal:

The TC members review the curriculum of the Bachelor's programme in Physics Education, with particular regard to requirement A6. Based on this review, they propose deleting the requirement, as the compulsory modules in Modern Physics and Electricity and Magnetism, together with the optional courses offered in the elective catalogue, are considered sufficient for an education programme.

With regard to requirement A5, the TC proposes revising the wording to give the university greater flexibility in determining the specific focus of its education programmes in accordance with the needs of the country.

In addition, the members consider recommendation E2 inappropriate, since general courses not related to STEM are included in all programmes in Indonesia, as required by the Ministry and the university. The TC also proposes deleting recommendation E11, as sharing courses with the B.Sc. programme in Physics is not common practice in education programmes. In addition, recommendation E4 was revised to make it more specific by replacing the word “clear” with “sufficient.”

Finally, the TC notes that the student mobility aspect of recommendation E3 should apply only to the Bachelor’s programmes. The Master’s programme is designed as continuing education for in-service teachers, and student mobility would be difficult to accommodate within this format. Consequently, a new recommendation E4 was introduced that applies exclusively to the Bachelor’s programmes under review.

The Technical Committee 13 – Physics recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Ba Physics Education	With requirements for one year	30.09.2032
Ba Physics	With requirements for one year	30.09.2032
Ma Science Education	With requirements for one year	30.09.2032

Requirements

For the Bachelor’s degree programmes Physics Education, Mathematics Education and Chemistry Education and Master’s programme Science Education

A 5. (ASIIN 1.3) Make sure to teach a broader range of internationally established educational concepts and teaching approaches, for example, by reducing the emphasis on science Olympiads.

For the Bachelor’s degree programme Physics Education

A 6. ~~(ASIIN 1.3) The electives modules Electrodynamics, Quantum Physics and Nuclear Physics need to be made compulsory.~~

Recommendations

For all degree programmes

E 2. ~~(ASIIN 1.3) It is recommended to reduce the proportion of courses entirely unrelated to STEM~~.

E 3. (ASIIN 1.3) It is recommended to strengthen the internationalisation strategy ~~by expanding student mobility and~~ **through** structured cooperation with foreign partner institutions (e.g. exchanges and guest/visiting lecturers).

E 4. (ASIIN 3.3) It is recommended to make sure that students have ~~more~~ **sufficient** access to software and to international literature, both journals and books.

For all Bachelor's programmes

E 5. (ASIIN 1.3) It is recommended to expand student mobility.

For the Bachelor's degree programme Physics Education

E 6. ~~(ASIIN 1.3) It is recommended to share more courses with the B.Sc. Physics programme~~.

I Decision of the Accreditation Commission (25.09.2026)

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

The Accreditation Commission follows the changes proposed by the Technical Committees. Regarding requirement A5, the AC agrees with the proposal of TC 12 – Mathematics that the part concerning the Olympiads should be formulated as a recommendation (see E6).

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**
Ba Physics	With requirements for one year	30.09.2032
Ba Physics Education	With requirements for one year	30.09.2032
Ba Mathematics	With requirements for one year	30.09.2032
Ba Mathematics Education	With requirements for one year	30.09.2032
Ba Chemistry Education	With requirements for one year	30.09.2032
Ma Science Education	With requirements for one year	30.09.2032

Requirements

For all degree programmes

A 1. (ASIIN 1.1) Ensure that the intended learning outcomes of the programme are described briefly and concisely.

A 2. (ASIIN 1.3) Arrange the modules in a coherent manner to ensure the achievement of the learning outcomes.

A 3. (ASIIN 4.2) Ensure that the Diploma Supplement provides statistical data on the distribution of final grades, as set out in the ECTS Users' Guide.

A 4. (ASIIN 5) Ensure that students are informed about the evaluation results.

For the Bachelor's degree programmes Physics Education, Mathematics Education and Chemistry Education and Master's programme Science Education

A 5. (ASIIN 1.3) Make sure to teach a broader range of internationally established educational concepts and teaching approaches.

For the Master's programme Science Education

A 6. (ASIIN 1.1) Ensure that the intended learning outcomes adequately cover the subject specific and professional competences that graduates are expected to achieve.

A 7. (ASIIN 1.4) Ensure that the admission requirements and procedures are clearly defined and published, and that they are accessible to all stakeholders. They must ensure that admitted students possess the academic and professional prerequisites necessary to achieve the intended learning outcomes and must be consistent with the programme's defined target group and profile.

A 8. (ASIIN 1.5) Evaluate the student workload and award credits accordingly. Ensure that the workload is distributed evenly across the semesters.

A 9. (ASIIN 4.3) Ensure that all relevant study-related regulations are publicly available and accessible to all stakeholders in a consistent and transparent manner.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to strengthen the internationalisation strategy through structured cooperation with foreign partner institutions (e.g. exchanges and guest/visiting lecturers).

E 2. (ASIIN 3.3) It is recommended to make sure that students have sufficient access to software and to international literature, both journals and books.

For all Bachelor's programmes

E 3. (ASIIN 1.3) It is recommended to expand student mobility.

For the Bachelor's programme Mathematics

E 4. (ASIIN 1.3) It is recommended to reconsider the profile of the current specialization "Pure and Educational Mathematics" and to explore a clearer differentiation between a pathway focused on Pure Mathematics and one with a stronger orientation towards Mathematics Education.

For the Bachelor's degree programmes Physics Education, Mathematics Education and Chemistry Education and Master's programme Science Education

E 5. (ASIIN 1.3) It is recommended to ensure that the curriculum allows for more practical experience for teaching real school students and students with special needs.

E 6. (ASIIN 1.3) It is recommended to reduce the emphasis on science Olympiads.

E 7. (ASIIN 3.1) It is recommended to establish stronger cross-program and interdisciplinary cooperation, for example, by establishing a common working group of the Mathematics, Physics and Chemistry education programmes Faculty teaching staff on good practice, common problems, etc.

E 8. (ASIIN 3.1) It is recommended to develop a strategy for developing research activity both in breadth and quantity in the education programmes.

For the Bachelor's degree programmes Physics and Physics Education

E 9. (ASIIN 4.1) It is recommended to review and make more specific the module descriptions.

For the Bachelor's degree programme Physics Education

E 10. (ASIIN 1.3) It is recommended to put a stronger emphasis on Modern Physics.

For the Bachelor's programmes Chemistry Education and Mathematics

E 11. (ASIIN 4.1) It is recommended to update the literature in the module descriptions.

For the Master's degree programme Science Education

E 12. (ASIIN 1.3) It is recommended to make the Master's programme more modular and flexible in order to accommodate the different academic and professional backgrounds of its participants.

Appendix: Programme Learning Outcomes and Curricula

According to the SAR, the following **learning outcomes** shall be achieved by the programmes under review:

Programme	PLO Code	PLO Statement
B.Sc. Physics	PLO-01	Communicate ideas systematically and creatively; work effectively both independently and in interdisciplinary teams.
	PLO-02	Evaluate scientific and artistic works interdisciplinarily with reference to truth (verum), goodness (bonum), and beauty (pulchrum).
	PLO-03	Practice the spirituality and core values of Parahyangan Catholic University (SINDU), uphold faith in God, and remain loyal to Pancasila.
	PLO-04	Master theoretical concepts and principles of classical and modern physics and the required mathematical, computational, and instrumentation methods.
	PLO-05	Apply physics knowledge and technology to formulate and solve real-world problems.
	PLO-06	Analyse physical phenomena using observational / experimental data; build appropriate mathematical/physical models; evaluate alternatives; and make decisions based on the analysis.
	PLO-07	Document results and communicate scientific work effectively while observing scientific ethics.
	PLO-08	Demonstrate lifelong learning skills and manage work independently and collaboratively.
B.Sc. Mathematics	PLO-01	Communicate ideas systematically and creatively; perform effectively both independently and in interdisciplinary settings.
	PLO-02	Evaluate scientific and artistic works from an interdisciplinary perspective based on verum– bonum–pulchrum.
	PLO-03	Practice SINDU values, faith in God, and loyalty to Pancasila.
	PLO-04	Demonstrate critical and independent attitudes; make informed decisions in the field; and review developments in the discipline and report them as scientific work.
	PLO-05	Develop professional networks, assume responsibility for team achievements, and conduct self-evaluation within teams.

Programme	PLO Code	PLO Statement
	PLO-06	Demonstrate skills in communication, problem solving, decision making, and the application of technology grounded in mathematical experience.
	PLO-07	Master theoretical concepts in mathematical logic, discrete mathematics, algebra, analysis, geometry, probability, and statistics.
	PLO-08	Master principles of mathematical modelling, linear programming, differential equations, and numerical methods.
	PLO-09	Understand, apply, analyse, evaluate, and create knowledge and technology relevant to the chosen track: actuarial science, data analytics, optimization and dynamics, or pure/educational mathematics.
B.Ed. Physics Education	PLO-01 (A1)	Practice the spirituality and fundamental values of Parahyangan Catholic University (SINDU), faith in God, and loyalty to Pancasila.
	PLO-02 (A2)	Internalise the spirit of independence, perseverance, and entrepreneurship; take responsibility for professional tasks individually and in groups.
	PLO-03 (GC1)	Communicate ideas systematically and creatively; perform effectively both independently and in interdisciplinary settings.
	PLO-04 (GC2)	Evaluate scientific and artistic works interdisciplinarily based on verum–bonum–pulchrum.
	PLO-05 (GC3)	Apply logical, critical, creative, and innovative thinking to solve scientific problems; manage self-learning; communicate effectively; and make ethical decisions that respect human values.
	PLO-06 (SC1)	Apply pedagogical concepts, conduct physics teaching, and develop learning tools based on instructional-design principles and technological developments while practising 21st-century skills.
	PLO-07 (SC2)	Apply critical and creative thinking to develop effective problem-solving strategies for learning

Programme	PLO Code	PLO Statement
		physics concepts.
	PLO-08 (SC3)	Use research skills to solve problems and improve the quality of physics learning through classroom research.
	PLO-09 (SC4)	Manage resources and make strategic decisions related to classrooms, physics laboratories, and educational institutions.
	PLO-10 (K1)	Integrate Technology, Pedagogical, and Content Knowledge (TPACK) for effective, contextual physics learning.
	PLO-11 (K2)	Master physics and related science concepts comprehensively and creatively by utilizing mathematics.
	PLO-12 (K3)	Apply research methodologies to improve the quality of physics learning in schools and to solve problems in physics education.
	PLO-13 (K4)	Master management and entrepreneurship theories in education, leveraging information and communication technology.
B.Ed. Mathematics Education	PLO-01 (A1)	Embody spirituality and the core values of Parahyangan Catholic University (SINDU), faith in God, and loyalty to Pancasila.
	PLO-02 (A2)	Internalise independence, resilience, and entrepreneurship; assume responsibility for professional tasks individually and in groups.
	PLO-03 (GS1)	Communicate ideas systematically and creatively; perform effectively both independently and interdisciplinarily.
	PLO-04 (GS2)	Evaluate scientific and artistic works from an interdisciplinary perspective based on verum–bonum–pulchrum.
	PLO-05 (GS3)	Apply logical, critical, creative, and innovative thinking to solve scientific problems while upholding human values and scientific ethics.
	PLO-06 (SS1)	Apply pedagogical-didactical concepts and mathematical knowledge in planning, implementing, and evaluating mathematics instruction creatively and innovatively.

Programme	PLO Code	PLO Statement
	PLO-07 (SS2)	Study and apply tested and innovative mathematics teaching methods, including LABIRIN-based approaches.
	PLO-08 (SS3)	Design and conduct research to solve problems in mathematics education and support informed decision- making.
	PLO-09 (SS4)	Plan and implement entrepreneurial activities in mathematics education.
	PLO-10 (K1)	Master fundamental concepts of education, pedagogical-didactical approaches in mathematics, and educational research methodology.
	PLO-11 (K2)	Comprehensively master concepts of school and advanced mathematics.
	PLO-12 (K3)	Master the principles and techniques of planning, implementing, and evaluating mathematics instruction and the use of technology.
	PLO-13 (K4)	Master basic knowledge of entrepreneurship and public communication skills.
B.Ed. Chemistry Education	PLO-01 (A1)	Practice spirituality and embody the core values of Parahyangan Catholic University (SINDU); demonstrate faith in God and adherence to Pancasila.
	PLO-02 (A2)	Internalise independence, perseverance, and entrepreneurship; take responsibility for work in the field of expertise.
	PLO-03 (GS1)	Communicate ideas systematically and creatively; perform effectively both independently and in interdisciplinary settings.
	PLO-04 (GS2)	Evaluate scientific and artistic works interdisciplinarily based on verum–bonum– pulchrum.
	PLO-05 (GS3)	Apply logical, critical, creative, and innovative thinking to solve scientific problems while upholding human values and scientific ethics.
	PLO-06 (SS1)	Manage chemistry education by employing appropriate learning models and technologies to develop students' competencies.

Programme	PLO Code	PLO Statement
	PLO-07 (SS2)	Facilitate the development of students' potential in advanced chemistry topics, including enrichment for competitions (e.g., chemistry olympiads).
	PLO-08 (SS3)	Utilise information and communication technologies in planning, delivering, and evaluating learning.
	PLO-09 (SS4)	Develop entrepreneurial activities in chemistry education, observing subsidiarity and non-profit principles.
	PLO-10 (SS5)	Communicate effectively to resolve challenges sustainably and optimally within chemical education contexts.
	PLO-11 (K1)	Implement TPACK innovatively and creatively in chemistry teaching.
	PLO-12 (K2)	Teach advanced chemistry topics and mentor students toward excellence in academic competitions.
	PLO-13 (K3)	Present research findings honestly and effectively to address educational challenges.
	PLO-14 (K4)	Engage in entrepreneurial activities within chemistry education.
	PLO-15 (K5)	Evaluate learning processes in chemistry education with a transformative, honest, and subsidiarity-oriented approach.
M.Ed. Science Education	PLO-01 (S1)	Practice the spirituality and core values of Parahyangan Catholic University (SINDU), faith in God, and loyalty to Pancasila.
	PLO-02 (S2)	Internalise independence, perseverance, and entrepreneurship; take responsibility for work in the expertise area.
	PLO-03 (KU1)	Develop logical, critical, systematic, and creative thinking through research, design, or scholarly/artistic work grounded in scientific attitudes and ethics.
	PLO-04 (KU2)	Formulate ideas, scientific reasoning, and arguments ethically and responsibly; communicate them through various media.
	PLO-05 (KU3)	Enhance self-learning capacity; manage and develop networks; and make informed decisions to address problems.

Programme	PLO Code	PLO Statement
	PLO-06 (KK1)	Develop knowledge, technology, and/or arts in the expertise area through research, producing innovative and tested works.
	PLO-07 (KK2)	Solve scientific, technological, and/or artistic problems in the expertise area through inter- or multidisciplinary approaches.
	PLO-08 (P1)	Master assessment development; master pedagogical and andragogical theories; and master science content and underlying theories.
	PLO-09 (P2)	Master concepts, principles, and applications of TPACK and research methodology for developing science education.
	PLO-10 (P3)	Document, store, secure, and retrieve research data; master academic publication procedures; and demonstrate academic integrity.
	PLO-11 (P4)	Optimise participation in scientific and science-education communities; and communicate scientific ideas and research results ethically.

The following **curriculum** is presented for the B.Sc. Physics programme:

Bachelor of Physics - Universitas Katolik Parahyangan

Simplified Conversion Model: 1 SKS = 5/3 ECTS (≈ 1.67 ECTS)

Semester 1

Course Code	Course Title	SKS	ECTS (= SKS x 5/3)
PHY231001-01	Introduction to the Physics Study Program	1	1.67
PHY231003-03	Basic Physics 1	3	5.00
PHY231005-01	Basic Physics Laboratory 1	1	1.67
PHY231007-04	Mathematical Physics 1	4	6.67
PHY231009-02	Physics Skills	2	3.33
PHY231011-03	Computer Programming	3	5.00
CHE231111-02	Basic Chemistry	2	3.33
MKU230130-02	Logic	2	3.33
Total		**18 SKS**	**30.00 ECTS**

Semester 2

Course Code	Course Title	SKS	ECTS (= SKS x 5/3)
PHY231002-03	Basic Physics 2	3	5.00
PHY231004-01	Basic Physics Laboratory 2	1	1.67
PHY231006-04	Mathematical Physics 2	4	6.67
PHY231008-03	Modern Physics	3	5.00
PHY231010-03	Computational Physics	3	5.00
MKU230120-02	Indonesian Language	2	3.33
MKU230110-02	Civic Education	2	3.33
Elective	Elective Course	2	3.33
Total		**20 SKS**	**33.33 ECTS**

Semester 3

Course Code	Course Title	SKS	ECTS (= SKS x 5/3)
PHY232001-03	Mathematical Physics 3	3	5.00
PHY232003-04	Mechanics	4	6.67
PHY232005-03	Waves	3	5.00
PHY232007-04	Electronics	4	6.67
PHY232009-01	Electronics Laboratory	1	1.67
PHY232011-01	Advanced Physics Laboratory 1	1	1.67
MKU230150-02	Basic Ethics	2	3.33
Total		**18 SKS**	**30.00 ECTS**

Semester 4

Course Code	Course Title	SKS	ECTS (= SKS x 5/3)
PHY232002-04	Mathematical Physics 4	4	6.67
PHY232004-04	Electricity and Magnetism	4	6.67
PHY232006-02	Thermal Physics	2	3.33
PHY232008-03	Structure of Matter	3	5.00
PHY232010-02	Instrumentation Physics	2	3.33
PHY232012-01	Advanced Physics Laboratory 2	1	1.67
MKU230140-02	Pancasila Education	2	3.33
Total		**18 SKS**	**30.00 ECTS**

Semester 5

Course Code	Course Title	SKS	ECTS (= SKS x 5/3)
PHY233001-04	Quantum Physics	4	6.67
PHY233003-03	Statistical Physics	3	5.00
PHY233005-04	Electrodynamics	4	6.67
PHY233007-02	Introduction to Nuclear Physics	2	3.33
PHY233009-02	Seminar	2	3.33
MKU230180-02	Aesthetics	2	3.33
MKU230160-02 / MKU230170-02	Religion	2	3.33
Total		**19 SKS**	**31.67 ECTS**

Semester 6

Course Code	Course Title	SKS	ECTS (= SKS x 5/3)
Electives / MBKM	Independent Learning	20	33.33
Total		**20 SKS**	**33.33 ECTS**

Semester 7

Course Code	Course Title	SKS	ECTS (= SKS x 5/3)
PHY234001-03	Final Project 1	3	5.00
Elective Courses	-	15	25.00
Total		**18 SKS**	**30.00 ECTS**

Semester 8

Course Code	Course Title	SKS	ECTS (= SKS x 5/3)
PHY234002-03	Final Project 2	3	5.00
PHY234004-02	Professional Ethics	2	3.33
SAB233204-03	Entrepreneurship	3	5.00
Elective Courses	-	5	8.33
Total		**13 SKS**	**21.67 ECTS**

Summary

Semester	SKS	Approx. ECTS
1	18	30.00
2	20	33.33
3	18	30.00
4	18	30.00
5	19	31.67
6	20	33.33
7	18	30.00
8	13	21.67
Total	**144**	**240.00**

The following **curriculum** is presented for the B.Sc. Physics Education programme:

Semester 1

No.	Code	Course name	SKS	ECTS
1.	MKU230110-02	Civic Education	2	3,33
2.	MKU230120-02	Bahasa Indonesia	2	3,33
3.	MKU230130-02	Logic	2	3,33
4.	FIS231111-03	Student Development and Guidance	3	5,00
5.	FIS231121-02	English for Physics	2	3,33
6.	MAT241111-03	Numeracy	3	5,00
7.	KIM241111-02	Learning theories	2	3,33
8.	TIK241111-02	Computer Fundamentals	2	3,33
9.	GSD241111-02	Teacher Professional Ethics	2	3,33
Total			**20**	**28,31**

Semester 2

No.	Code	Course name	SKS	ECTS
1.	FIS241112-03	Conceptual Physics	3	5,00
2.	FIS241122-03	Basic Electronics	3	5,00
3.	FIS241132-02	Essential Concepts of Natural Sciences	2	3,33
4.	FIS241142-03	Calculus	3	5,00
5.	FIS241152-02	Measuring Instruments and Physical Measurements	2	3,33
6.	FIS241162-02	Physics Learning Methodology	2	3,33
7.	FIS241172-03	Physics Curriculum	3	5,00
8.	ING241112-02	Philosophy of Education	2	3,33
Total			**20**	**33,32**

Semester 3

No.	Code	Course name	SKS	ECTS
1.	MKU230140-02	Pancasila Education	2	3,33
2.	MKU230150-02	Ethics	2	3,33
3.	FIS242113-03	Vibration and Waves	3	5,00
4.	FIS242123-03	Mechanics	3	5,00
5.	FIS242133-03	Thermodynamics	3	5,00
6.	FIS242143-03	Assessment of Physics Learning	3	5,00
7.	FIS242153-02	Physics Learning Media	2	3,33
8.	FIS242163-03	Mathematical Physics 1	3	5,00
Total			**21**	**34,99**

Semester 4

No.	Code	Course name	SKS	ECTS
1.	FIS242114-02	Physics Experiment 1	2	3,33
2.	FIS242124-03	Mathematical Physics 2	3	5,00
3.	FIS242134-03	Modern Physics	3	5,00
4.	FIS242144-03	Electricity and Magnetism	3	5,00
5.	FIS242154-03	Optics	3	5,00
6.	FIS242164-02	Physics Learning Design	2	3,33
7.	KIM241112-03	Entrepreneurship	3	5
Total			**20**	**31,66**

Semester 5

No.	Code	Course name	SKS	ECTS
1.	MKU230160-02	Catholic Religion	2	3,33
	MKU230170-02	Phenomenology of Religion		
2.	MKU230180-02	Aesthetics	2	3,33
3.	FIS243115-02	Earth and Space Science	2	3,33
4.	FIS243125-02	Fluid Mechanics	3	5,00
5.	FIS243135-03	Physics Olympiad 1	3	5,00
6.	FIS243115-02	LABIRIN-based Physics 1	3	5,00
7.	MAT243115-03	Statistics for Educational Research	2	3,33

8.		Elective Course 1*	2	3,33
Total			**19**	**31,65**

Semester 6

No.	Code	Course name	SKS	ECTS
1.	FIS243116-02	Physics Experiment 2	2	3,33
2.	FIS243126-03	Physics Olympiad 2	3	5,00
3.	FIS243136-03	LABIRIN-based Physics 2	3	5,00
4.	FIS243146-03	Microteaching of Physics	3	5,00
5.	FIS243156-03	Physics Education Research Methodology	3	5,00
6.	FIS243166-03	Physics Education Entrepreneurship	3	5,00
7.	KIM243116-02	Analysis of Education Problem	2	3,33
Total			**19**	**31,66**

Semester 7

No.	Code	Course name	SKS	ECTS
1.	FIS244117-02	Physics Learning Technology	2	3,33
2.	FIS244127-03	Physics Teaching Material Development	3	5,00
3.	FIS244137-02	School Physics Laboratory Management	2	5,00
4.	ING244117-04	Field Experience Practice	4	5,00
5.	TIK244117-03	School-based Management	3	5,00
6.		Elective Course 2*	2	5,00
7.		Elective Course 3*	2	3,33
8.		Elective Course 4*	2	3,33
Total			**20**	**34,99**

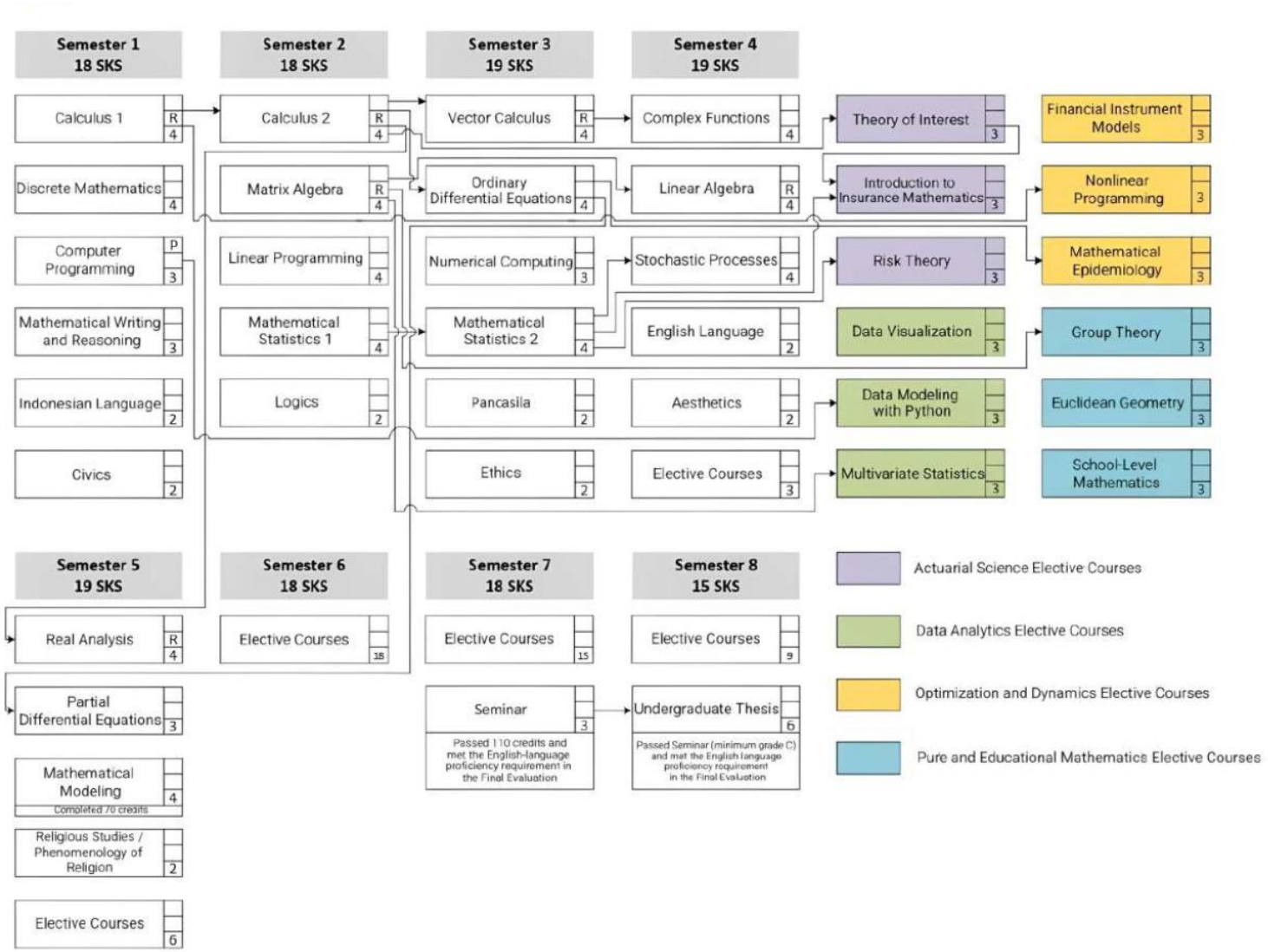
Semester 8

No.	Code	Course name	SKS	ECTS
1.	FIS244118-06	Undergraduate Thesis	6	10
Total			**6**	**10**

Elective courses

No	Code	Course Name	SKS	ECTS
1.	FIS243015-02	Bio Fisika	2	3,33
2.	FIS243015-03	International Assessment of Junior High School Physics	3	5,00
3.	FIS243025-03	Physics Olympiad 3	3	5,00
4.	FIS243035-02	Advanced Mechanics	2	3,33
5.	FIS243045-02	Special Theory of Relativity	2	3,33
6.	FIS243055-02	Nuclear Physics	2	3,33
7.	FIS243065-02	Quantum Physics	2	3,33
8.	FIS243075-02	Physics in Music and Sports	2	3,33
9.	FIS243016-03	International Assessment of Senior High School Physics	3	5,00
10.	FIS243026-03	Computational Physics	3	5,00
11.	FIS243036-02	Electrodynamics	2	3,33
12.	FIS243046-03	Physics Simulation	3	5,00
13.	FIS243056-02	Particle Physics	2	3,33
14.	FIS243066-02	Statistical Physics	2	3,33
15.	FIS243076-02	Solid State Physics	2	3,33
16.	FIS244017-02	Classroom Management	2	3,33
17.	FIS244027-02	Educational Quality Assurance System	2	3,33
18.	FIS244037-02	Journal Review	2	3,33
19.	FIS244047-02	Scientific Writing	2	3,33
20.	FIS244057-02	Physics Review	2	3,33
21	FIS244067-02	Finansial Management	2	3,33
22.	KIM244018-03	English for Presentations	3	5,00
23.	TIK244027-02	Academic System Management	2	3,33
Total			**51**	**68,61**

The following **curriculum** is presented for the B.Sc. Mathematics programme:



The following **curriculum** is presented for the Bachelor's Mathematics education programme:

Mathematics Education					
SEMESTER 1	No	Module Code	Module Title	SKS	ECTS
	1	MKU230110-02	Civic Education	2	3,29697
	2	MKU230120-02	Indonesian Language	2	3,29697
	3	MKU230130-02	Logic	2	3,29697
	4	MAT231111-03	Numeracy	3	4,94545
	5	TIK231111-02	Computer Fundamentals	2	3,29697
	6	MAT231121-02	English for Mathematics	2	3,29697
	7	GSD241111-02	Teacher Professional Ethics	2	3,29697
	8	FIS231111-03	Student Development and Gudance	3	4,94545
	9	KIM231111-02	Learning Theories	2	3,29697
			Total	20	32,9697
SEMESTER 2	No	Kode MK	Nama MK	SKS	ECTS
	1	MAT231122-03	Mathematical Logic and Set Theory	3	4,94545
	2	MAT231132-03	Number Theory	3	4,94545
	3	MAT231142-03	Differential Calculus	3	4,94545
	4	MAT231152-03	Elementary Linear Algebra	3	4,94545
	5	MAT231112-03	Basic Statistics	3	4,94545
	6	MAT231172-03	Mathematics Curriculum	3	4,94545
	7	MAT231162-02	Mathematics Teaching Methodology	2	3,29697
			Total	20	32,9697
SEMESTER 3	No	Kode MK	Nama MK	SKS	ECTS
	1	MKU230140-02	Pancasila Education	2	3,29697
	2	MKU230150-02	Ethics	2	3,29697
	3	MAT232113-03	Integral Calculus	3	4,94545
	4	MAT232133-03	Probability Theory	3	4,94545
	5	MAT232123-03	Basic Geometry	3	4,94545
	6	MAT232143-03	Mathematics Learning Assessment	3	4,94545
	7	MAT232153-02	Mathematics Learning Media	2	3,29697
			Total	18	29,6727
SEMESTER 4	No	Kode MK	Nama MK	SKS	ECTS
	1	MAT232114-02	Advanced Calculus	2	3,29697
	2	MAT232124-03	Ordinary Differential Equation	3	4,94545
	3	MAT232134-03	Analytical Geometry	3	4,94545
	4	MAT232144-03	Linear Programming	3	4,94545
	5	MAT232154-03	Discrete Mathematics	3	4,94545
	6	MAT232164-02	Mathemacis Lesson Design	2	3,29697
	7	KIM231112-03	Entrepreneurship	3	4,94545
	8	ING241112-02	Philosophy of Education	2	3,29697

			Total	21	34,6182
SEMESTER 5	**No**	**Kode MK**	**Nama MK**	**SKS**	**ECTS**
	1	MKU230160-02	Catholic Religion	2	3,29697
		MKU230170-02	Phenomenology of Religion		
	2	MKU230180-02	Aesthetics	2	3,29697
	3	MAT233125-03	Real Analysis	3	4,94545
	4	MAT233155-03	Abstract Algebra	3	4,94545
	5	MAT233135-03	Mathematics Olympiad 1	3	4,94545
	6	MAT233145-03	LABIRIN-based Mathematics 1	3	4,94545
	7	MAT233115-03	Educational Research Statistics	3	4,94545
			Total	19	31,3212
SEMESTER 6	**No**	**Kode MK**	**Nama MK**	**SKS**	**ECTS**
	1	MAT233116-03	Mathematical Statistics	3	4,94545
	2	MAT233126-03	Mathematics Olympiad 2	3	4,94545
	3	MAT233136-03	LABIRIN-based Mathematics 2	3	4,94545
	4	MAT233156-03	Mathematics Education Research Metholody	3	4,94545
	5	MAT233146-03	Microteaching of Mathematics	3	4,94545
	6	KIM233116-02	Educational Problem Analysis	2	3,29697
	7	MAT233166-03	Kewirausahaan Pendidikan Matematika	3	4,94545
			Total	20	32,9697
SEMESTER 7	**No**	**Kode MK**	**Nama MK**	**SKS**	**ECTS**
	1	MAT 234117-04	Field Experience Practice	4	6,59394
	2	TIK234117-03	Scholl-based Management	3	4,94545
	3	MAT234117-02	Mathematics Learning Technology	2	3,29697
	4	MAT234127-03	Selected Topics in High School Mathematics	3	4,94545
	5	MAT234137-02	Ethnomathematics	2	3,29697
			Elective Module 1*	2	3,29697
			Elective Module 1*	2	3,29697
			Elective Module 1*	2	3,29697
			Total	20	32,9697
SEMEST	No	Kode MK	Nama MK	SKS	ECTS
	1	MAT234118-06	Undergraduated Thesis	6	9,89091
			Total	6	9,89091

GRAND TOTAL	**144**	**237,382**

The following **curriculum** is presented for the Bachelor's Chemistry Education programme:

1st Semester				
Number	**Course code**	**Courses**	**Credits**	**ECTS**
1	**MKU230110-02**	**Civic Education**	**2**	3,33
2	**MKU230120-02**	**Indonesian Language**	**2**	3,33
3	**MKU230130-02**	**Logic**	**2**	3,33
4	KIM241111-02	Learning Theory	2	3,33
5	KIM2411121-02	English for Chemistry	2	3,33
6	MAT241111-03	Numeracy	3	5
7	FIS2411111-03	Student Development and Guidance	3	5
8	TIK241111-02	Computer Fundamentals	2	3,33
9	GSD241111-02	Teacher Professional Ethics	2	3,33
		Total credits for 1st semester	**20**	
Information: R = Response; P = Laboratory work				
2nd Semester				
Number	**Course Code**	**Courses**	**Credits**	**ECTS**
1	KIM241112-03	Basic Chemistry 1	3	5
2	KIM241122-02	Chemistry Laboratory 1	2	3,33
3	KIM241132-02	Chemistry Teaching Methodology	2	3,33
4	KIM241142-03	Chemistry Curriculum	3	5

5	FIS241112-03	Conceptual Physics	3	5
6	FIS241132-02	Essential Concepts of Natural Sciences	2	3,33
7	ING241112-02	Philosophy of Education	2	3,33
8	GSD242114-03	Entrepreneurship	3	5
		Total credits for 2nd semester	**20**	
Information: R = Response; P = Laboratory work				
3rd Semester				
Number	**Course Code**	**Courses**	**Credits**	**ECTS**
1	**MKU230140-02**	**Pancasila Education**	**2**	3,33
2	**MKU230150-02**	**Ethics**	**2**	3,33
3	KIM242113-03	Basic Chemistry 2	3	5
4	KIM242123-02	Chemistry Laboratory 2	2	3,33
5	KIM242133-03	Analytical Chemistry 1	3	5
6	KIM242143-03	Chemistry Learning Assessment	3	5
7	KIM242153-02	Chemistry Learning Media	2	3,33
8	KIM242163-03	Organic Chemistry 1	3	5
		Total credits for semester 3	**20**	
Information: R = Response; P = Laboratory work				
4th Semester				
Number	**Course Code**	**Courses**	**Credits**	**ECTS**
1	KIM242114-03	Basic Chemistry 3	3	5
2	KIM242124-02	Chemistry Laboratory 3	2	3,33
3	KIM242134-02	Analytical Chemistry 2	3	5
4	KIM242144-02	Organic Chemistry 2	3	5
5	KIM242154-03	Physical Chemistry 1	3	5
6	KIM242164-02	Chemistry Learning Design	2	3,33
7	KIM242174-03	Inorganic Chemistry 1	3	5

7th Semester (MBKM's program)				
Number	**Course Code**	**Courses**	**Credits**	**ECTS**
1	KIM244117-02	Chemistry Learning Technology	2	3,33
2	KIM244127-03	Chemistry Teaching Material Development	3	5
3	KIM244137-02	Chemistry Laboratory Management	2	3,33
4	KIM244117-04	Field Experience Practice	4	6,67
5	TIK244117-03	School-based Management	3	5
6	KIM24xxxx-02	Optional course 1*	2	3,33
7	KIM24xxxx-02	Optional course 2*	2	3,33
8	KIM24xxxx-02	Optional course 3*	2	3,33
		Total credits for 7th semester	**20**	
Information: R = Response; P = Laboratory work				
8th Semester				
Number	**Course Code**	**Courses**	**Credits**	**ECTS**
1	KIM244118-06	Undergraduate Thesis	6	10
		Total credits for 8th semester	**6**	
		Total credits in Chemistry Education Program FKIP UNPAR	**145**	

For students who take the MBKM Program, in semester 7 the students take the following courses:

7th Semester (MBKM)			
Number	**Course Code**	**Courses**	**ECTS**
1		Teaching Assistance at School (1 semester), Internship at School, Teaching Campus, or according to the opportunity opened when the student entered semester 7 with the approval of the Head of Study Program.	33,4
		Total credits for 7th semester	33,4

The following **curriculum** is presented for the Master's Science Education programme:

Simplified Conversion Model: 1 SKS = 1.67 ECTS

Structure of Courses in the 2024 Curriculum of the Master of Science Education Program

Semester 1

No	Course Code	Course Title	SKS	ECTS
1	IPA235111-03	Essential Concepts of Science 1	3	5
2	IPA235121-03	Technology and Media in Science Education 1	3	5
3	IPA235131-03	Statistics in Educational Research	3	5
4	IPA235141-03	Review of Research Findings in Science Education	3	5
5	IPA235151-03	Curriculum and Instructional Review in Science Education	3	5
6	IPA235161-02	Philosophy of Science	2	3.33
	Total		17	28.33

Semester 2

No	Course Code	Course Title	SKS	ECTS
1	IPA235112-03	Essential Concepts of Science 2	3	5
2	IPA235122-03	Technology and Media in Science Education 2	3	5
3	IPA235132-03	Science Olympiad 1	3	5
4	IPA235142-03	LABIRIN (Interactive and Unique Learning) in Science Education 1	3	5
5	IPA235152-03	Curriculum and Instructional Development in Science Education	3	5
6	IPA235162-02	Assessment of Higher-Order Thinking Skills	2	3.33
	Total		17	25.5

Semester 3

No	Course Code	Course Title	SKS	ECTS
1	IPA236113-03	Essential Concepts of Science 3	3	5
2	IPA236123-03	Science Olympiad 2	3	5
3	IPA236133-03	LABIRIN (Interactive and Unique Learning) in Science Education 2	3	5
4	IPA236143-03	Development of Science Practical Teaching Materials	3	5
5	IPA236153-03	Research Methodology in Education	3	5
	Total		15	25

Semester 4

No	Course Code	Course Title	SKS	ECTS
1	IPA236114-06	Thesis	6	10
	Total		6	10

Total ECTS = 88.83