ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Forestry
Agricultural Engineering

Master's Degree Programmes
Plant Pest and Disease
Environmental Management

Provided by
Universitas Hasanuddin

Version: 27 June 2025

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Sarjana Kehutanan	Ba Forestry	ASIIN	National Accreditation Board (BAN-PT), Accredited "Unggul" (Excellent) Decree No.23/08/2022-23/08/2027	08
Sarjana Teknik Pertanian	Ba Agricultural Engineering	ASIIN	National Accreditation Board (BAN-PT), Accredited "Unggul" (Excellent) Decree No. 8071/SK/BAN-PT/Ak.Ppj/S/X/2022. Valid until 1 November, 2027 International certification by the AUN-	08

[2] TC: Technical Committee for the following subject areas: TC 08 - Agriculture, Forestry and Food Sciences

			QA, certificate number AP410UNHASAPR19. Valid until May 11, 2024	
Magister Ilmu Hama dan Penyakit Tumbuhan	Ma Plant Pest and Disease	ASIIN	Ünggul" (Excellent) accreditation by BAN-PT Decree No. 2192/SK/BAN-PT/AKISK/M/IV/2022 valid from 5 April 2022 to 10 September 2024	08
Magister Pengololaan Lingkungan Hidup	Ma Environmental Management	ASIIN	Accredited grade "Unggul" (Excellent) by the Indonesian BAN-PT No. 11613/SK/BAN-PT/AKISKM/X/2021	08
Date of the contract: 30.05.2023 **Submission of the final version of the self-assessment report:** 22.01.2024 **Date of the onsite visit:** 07.03- 08.03.2024 **at: UNHAS Campus**				
Expert panel: Prof. Dr. Jürgen Pretzsch, Technical University Dresden				

Prof. Dr. Chen Tsu-Wei, Humboldt University Berlin Dr. Slamet Widodo, IPB Bogor Dr. Arinafril, Universitas Sriwijaya Almansyah Sinatrya, Tobaco Leaf Mashirra Hazelita, student at University of Jambi	
Representative of the ASIIN headquarter: Daniel Seegers	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of March 28, 2023 Subject-Specific Criteria of Technical Committee 08 – Agriculture, Forestry, Food Sciences, and Landscape Architecture as of March 27, 2015	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Bachelor Programme in Forestry	S.Hut/ Bachelor of Forestry		6	Full time	No	8 Semesters	144 CP / 244.8 ECTS	September / 1963
Bachelor Programme in Agricultural Engineering	S.TP/ Bachelor of Agricultural Technology		6	Full time	No	8 Semesters	147 CP / 249.9 ECTS	September / 1980
Master Programme in Plant Pest and Disease	M.Si / Master of Science		7	Full time	No	4 Semesters	39 -42 CP / 66.3 – 71.4 ECTS	March & September / 2010
Master Programme in Environmental Management	M.Ling/ Master of Environment		7	Full time	No	4 Semesters	41 CP / 69.7 ECTS	March & September / 1982

For the Bachelor's degree in Forestry, the institution has presented the following profile on the programme's website:

„**Vision of the Forestry Study Program**

The strategic plan of the Faculty of Forestry, Hasanuddin University 2016–2019 was formulated by the Minister of Research, Technology and Higher Education Regulation (Permenristekdikti) No. 13 of 2015, the Hasanuddin University Development Plan 2030, the UNHAS Strategic Plan 2015-2020, the objectives of the transformation of UNHAS as a World Class University, the identity of the faculty, and the workshop result on the preparation of the Forestry Faculty work program. Based on these references, the Forestry Faculty's vision, mission, goals, and values are described as follows.

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

Considering the above account, as well as the curriculum developing process by stakeholder users, alumni, and students, the peculiarity of the Forestry Study Program as a scientific vision is "The Center for Human Resources Development and Science and Technology for Forest Management based on landscapes in rural forest areas." This vision shows the determination of the Forestry Faculty UPPS, Hasanuddin University, to make the Forestry Study Program to build and develop human resources (HR) and the world of forestry education that has cognitive, psychomotor, and affective dimensions based on the Indonesian territory perspective as a natural unit of sea, land, and aerospace. Forestry, environmental science, and technology with a maritime perspective are implemented by developing integrated forestry and environmental science as a single ecosystem. The scope of human resources (HR) is proposed to consist of students, forestry alumni, government officials, and the general public involved in forestry activities.

Mission of the Forestry Study Program

The Forestry Studies Program mission is a scientific vision elaboration, which is formulated with an emphasis on the implementation of the university's Tri Dharma activities as follows:

1. Organizing quality education to produce professional graduates in the forestry sector. This mission is translated into quality education management by established procedure manuals. Curriculum design is directed to produce graduates with professional competence as foresters and honest, responsible, disciplined, humane, visionary, fair, caring, and cooperative characteristics.
2. Develop innovative forestry science and technology in responding to local and global problems. The Faculty of Forestry gives high priority to research and development of innovative science and technology related to forests, forest areas, and forest products which are carried out in an integrated manner to address forestry and the environment within the community around forests and the global environment.
3. Disseminate and apply forestry science and technology for community welfare and environmental sustainability. This mission includes the dissemination and application of forestry science and technology results for community empowerment through systematic programs as well as communication and harmonious partnerships in the long term by always actualizing and revitalizing the forestry sector's role in the globalization era."

For the Bachelor's degree in Agricultural Engineering, the institution has presented the following profile on the programme's website:

‘‘Quantitative Analysis is the soul of the educational process of the Agricultural Engineering Study Program (PSTP). Strong exposure to such analysis is believed to be an important foundation of logical and analytical thinking, and the development of problem-solving skills. This belief has existed since the inception of PSTP and has greatly influenced the design of the PSTP curriculum along with its teaching and learning strategies. All staff are fully aware of and committed to providing a quality teaching and learning atmosphere that enables students to discover their full potential in quantitative analysis. The student-centred approach has become the essence of this atmosphere. However, the teaching approach should not be abandoned, especially for basic subjects. The right combination of teaching and learning approaches must be carried out by each PSTP staff to ensure effectiveness in the teaching and learning process. Exposing students to theoretical concepts/principles, laboratory and field experiments to provide students with direct experience, and individual and group assignments will make students really understand quantitative analysis. These approaches will certainly increase the level of readiness of PSTP students to use their knowledge and skills, both in education and subsequent careers. This principle has become the educational philosophy of PSTP.”

For the Master’s degree programme Environmental Management, the institution has presented the following profile on the programme's website:

„**Vision**

Becoming a national leading master study program in the development of environmental managers based on the Indonesian maritime continent in the Wallacea region in 2028.

Mission

1) Organizing education with a global perspective and competence in the field of environmental management.

2) Develop science and technology related to environmental management in the Wallacea Region

3) Realizing a healthy, harmonious, and sustainable living environment through community empowerment.”

For the Master's degree programme Plant Pest and Disease, the institution has presented the following objectives on the programme's website:

"**VISION**

The Master Program in Pest and Plant Disease Science until 2030 is "To become the foremost master's study program in the Indonesian Maritime Continent (BMI) that is environmentally friendly based on biological resources to support sustainable agriculture.

MISION

Providing quality education programs in the field of pest and plant diseases that support sustainable agriculture

Developing Research Towards the "Center of Excellence" in the field of plant pests and diseases by utilizing environmentally friendly biological resources.

Organizing community service in the field of pests and plant diseases to improve community welfare for the benefit of the Indonesian maritime continent."

C 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
- Study plan of the degree programmes
- Module descriptions
- Objective-Module Matrices
- Webpage of the study programmes
- Curriculum Handbooks
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The auditors refer to the respective ASIIN Subject-Specific Criteria (SSC) of the Technical Committee Agriculture, Forestry and Food Sciences (TC 08) as a basis for judging whether the intended learning outcomes of the Bachelor's programmes as defined by Hasanuddin University (UNHAS) correspond with the competencies outlined in the SSC. For this, UNHAS has provided detailed descriptions of all Programme Learning Outcomes (PLO) and Intended Learning Outcomes (ILO) as well as matrices that show the relations between PLO and ILO and how the PLO and ILO are substantiated in the courses of the study programmes. The following paragraphs will summarise the Objectives and Learning Outcomes of all programmes under review, as defined by UNHAS.

The Bachelor Programme in Forestry (BPF) at UNHAS is organized around four Program Learning Outcomes (PLOs) designed to prepare graduates for roles such as Manager, Researcher, Facilitator, and Eco-technopreneur. These roles align with current demands in the forestry sector and are based on comprehensive stakeholder consultations and trend analysis.

Supporting these PLOs, the programme has developed nine Intended Learning Outcomes (ILOs) that encompass a wide range of essential skills. These include internalizing professional ethics in forestry, demonstrating basic and advanced concepts of forest management, and designing and implementing community empowerment projects. Additionally, the ILOs cover lifelong learning skills crucial for personal and professional development in the forestry sector, such as critical thinking, effective communication, and interdisciplinary teamwork. Practical skills such as forest resource inventory, mapping techniques, and business plan preparation are also emphasized to ensure graduates are well-equipped to manage and innovate within the field.

The Bachelor Programme in Agricultural Engineering (BPAE) at UNHAS is outlined on its website, providing transparency to students, lecturers, and external stakeholders. This programme aligns with the expectations of key entities such as the Association Society of Agricultural Engineering (PERTETA), incorporating feedback from internal and external stakeholders to ensure its relevance nationally and internationally.

The curriculum emphasizes a broad skill set in natural sciences, mathematics, and engineering, pertinent to the agricultural discipline. It focuses on practical applications in key areas such as land and water management, machinery, and food engineering, while also fostering social competencies necessary for effective teamwork and communication.

The programme is structured around four Program Learning Outcomes (PLOs): Planner and Engineer, Manager, Research Assistant, and Entrepreneur. These roles are designed to prepare graduates for diverse careers in agricultural engineering, enhancing their ability to manage agricultural resources sustainably, design necessary engineering components, and develop innovative solutions to industry challenges.

The Master Programme in Plant Pest and Disease (MPPPD) at UNHAS is structured with the intent that graduates will master professional ethics and develop a comprehensive understanding of the factors influencing plant pests and diseases. The programme aims for graduates to be adept at formulating scientific arguments and pioneering solutions in the field.

Graduates are expected to excel in diagnostic and forecasting techniques, identifying beneficial organisms for biological control, and designing sustainable plant and seed production systems. They should also be capable of disseminating research findings effectively through scientific publications and forums.

Ultimately, the programme prepares graduates to contribute to policymaking and develop integrated control technologies, thus enhancing agricultural productivity and sustainability.

The Master Programme in Environmental Management (MPEM) at UNHAS is structured to prepare graduates for roles as managers, consultants, lecturers, and researchers.

Graduates are expected to develop advanced logical, critical, systematic, and creative thinking skills through scientific research specifically aimed at environmental management challenges. They are equipped to perform academic validations, solve environmental problems in society or industry, and master environmental management theories particularly relevant to the Wallacea Ecosystem Region.

Furthermore, the MPEM intends for its graduates to be proficient in formulating and communicating scientific conceptions and arguments responsibly, managing and developing professional networks, and maintaining high standards of data integrity to prevent plagiarism. They are also trained to address scientific and technological problems using interdisciplinary approaches, manage and disseminate research effectively to benefit society, and achieve recognition at national and international levels.

Overall, the MPEM equips its graduates with the necessary skills and knowledge to contribute significantly to the field of environmental management, ensuring their preparedness for various professional roles and challenges.

The four programmes under review ensure the currency of their curricula and respond to stakeholder needs through comprehensive evaluation mechanisms. Regular self-evaluation sessions assess the academic community's understanding of the programmes' vision, mission and objectives, facilitating improvements in communication and teaching materials. In addition, evaluations of learning outcomes by graduates and their experts, as well as assessments of graduates' performance in the labour market, provide invaluable insights into the effectiveness and relevance of the curriculum. These evaluations inform ongoing curriculum updates that incorporate international standards, outcomes-based education principles and innovative teaching methods to enhance graduate competencies. Stakeholder feedback, gathered through surveys and tracer studies, guides targeted interventions to address any competency gaps, ensuring that graduates are well prepared to meet industry demands and excel in their professions. Through continuous improvement initiatives and stakeholder engagement, the reviewed programmes maintain their commitment to providing high quality education and producing graduates who are equipped to succeed in their respective fields.

While the experts are largely satisfied with the objectives and learning outcomes of the programmes reviewed at UNHAS, they assert that UNHAS should ensure the systematic integration of climate change content across all programmes. For the Master's degree programmes, inclusion of comprehensive climate change education is imperative as it represents the current state of the art. Graduates from these programmes are expected to perform at a higher level of expertise and meet international standards, necessitating a deep

understanding of climate change and its implications. For the Bachelor's degree programmes, it is recommended to include this content due to the high relevance of the topic in today's academic and professional landscapes.

Furthermore, while the experts acknowledge that aspects of climate change may currently be addressed sporadically within some courses, there appears to be a lack of systematic integration of climate change across the curriculum. This gap underscores the need for a more structured approach to embedding climate change content to ensure that all students, regardless of their specific field of study, are well-equipped to tackle this critical global challenge.

In addition, the experts have noted that while the MPEM effectively covers national standards of AMDAL (Environmental Impact Assessment), there is a critical need to expand the curriculum to include international standards, specifically Life Cycle Assessment (LCA) methodologies and principles. This inclusion is essential as LCA represents a comprehensive approach used globally to assess the environmental impacts associated with all the stages of a product's life from raw material extraction through materials processing, manufacture, distribution, use, repair and maintenance, and disposal or recycling. Integrating LCA into the curriculum will not only broaden the scope of the students' expertise but also enhance their graduate profile, making them more versatile and competitive in the international arena. This adjustment will ensure that graduates are well-prepared to apply both national and international environmental standards, crucial for effective management and decision-making in the field of environmental management.

The collaboration between UNHAS and its industrial partners presents encouraging prospects for graduates in the national job market, as well as avenues for advanced academic pursuits, such as Master's or even PhD programmes. Nevertheless, employers emphasize the need for candidates with strengthened soft skills. Likewise, students are eager to enhance their competency in this domain. Consequently, the experts advocate for the integration of more content facilitating the development of these skills throughout the programmes. This holistic approach should be reflected in the programme planning to ensure comprehensive skill development.

In conclusion, the auditors base their assessment on the SSC outlined by the Technical Committee Agriculture and Food Sciences (TC 08). After careful consideration, they determine that the intended learning outcomes defined by UNHAS for the four study programmes align adequately with the competencies delineated in the SSC. However, they note two exceptions, particularly concerning the Master’s programmes, where they see some room for improvement. Overall, the auditors find the objectives and intended learning outcomes of the reviewed programmes to be rational and well-established.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report
- Webpages of the study programmes
- Curriculum Handbooks
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The auditors confirm that the English translations and the original Indonesian names of the degree programmes correspond with the intended aims and learning outcomes as well as the main course language.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plan of the degree programmes
- Module descriptions
- Objective-Module Matrices
- Webpage of the study programmes
- Curriculum Handbooks
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The curricula of the degree programmes are designed to comply with the programme objectives and learning outcomes and they are subject to constant revision processes. As such, the curricula are reviewed regularly and commented on by students and teachers as well as by external stakeholders such as alumni or partners from schools and the private sector. Regular changes are made to ensure that the curricula are up to modern standards. Besides the objectives and learning outcomes defined by UNHAS itself, the curricula also take into account the Indonesian standards of higher education and the Indonesian national qualifications framework as well as the recommendations from industry.

The regular bachelor degree programmes are typically completed within eight semesters, spanning four years. The MPPD and MPEM programmes are designed for four semesters each. High-performing students have the option to accelerate their studies by taking up to

24 SKS per semester, thereby shortening the regular study duration. Each semester encompasses 16 weeks, with 14 weeks dedicated to learning activities and 2 weeks allocated for midterm and final exams. The academic year follows a structured calendar, with the odd semester commencing in August and concluding in January, and the even semester spanning from February to June.

Practical application is integrated into the majority of courses, emphasising hands-on experience, which is essential for students' holistic development and preparation for their future careers.

The bachelor programmes are designed to offer a thorough education spanning eight semesters. In Semester 1, students concentrate on general courses aimed at improving their learning skills, attitudes, and personal development. Semester 2 introduces core courses in Forestry or Agricultural Engineering laying the groundwork for subsequent study. From Semesters 3 to 6, students delve deeper into their subject-specific studies, which will be further detailed in the subsequent paragraphs for each programme.

The BPF progresses through semesters 3 to 6 with a curriculum designed to deepen technical knowledge and expand into strategic management and community engagement.

Technical Foundations and Practical Skills (Semesters 3 and 4): These semesters focus on equipping students with critical technical skills in Geographic Information Systems, Silviculture, Forest Ecology, and Solid Wood Processing. Students also learn about Forest Inventory techniques, preparing them for practical forestry management tasks.

Strategic Management and Community Engagement (Semesters 5 and 6): The curriculum shifts towards community-focused forestry and conservation strategies. It includes courses on Community Forestry, Environmental Management, and Agroforestry, which emphasize sustainable practices and community involvement. Advanced topics such as Forestry Extension, Forest Management, and Forest Village Empowerment in the final semester integrate students' knowledge with practical management skills, preparing them for future roles in forestry policy and administration.

The curriculum for the BPAE evolves from foundational knowledge to specialized applications across semesters 3 to 6.

Semesters 3 and 4 focus on core agricultural engineering disciplines such as Soil Science, Fluid Mechanics, and Thermodynamics, supplemented by practical training through various practicums in Surveying, Instrumentation, and Fluid Mechanics. This phase equips students with essential engineering skills and practical experience necessary for fieldwork and data analysis.

Semesters 5 and 6 advance into specialized topics like Renewable Energy, Farm Machinery, and Irrigation and Drainage Engineering, with corresponding practicums to enhance hands-on skills. Elective courses available in these semesters, such as Artificial Intelligence, Modelling and Simulation, and Agro-Informatics, allow students to tailor their learning to emerging agricultural technologies and challenges. The curriculum also integrates management and conservation practices, preparing students for both technical and managerial roles in the agricultural sector.

Overall, the programme is structured to progressively deepen students' engineering expertise while expanding their practical and managerial capabilities, preparing them for the multifaceted demands of modern agricultural industries.

Semester 7 and 8 are dedicated to Community Service and a final thesis in which students demonstrate their mastery and understanding of the principles learned throughout the programmes. This comprehensive structure ensures that graduates are well equipped with a diverse range of skills to succeed in various aspects of agriculture and related industries.

The MPEM is strategically designed to enable students to develop specialized expertise through a tailored curriculum.

First Semester: Students customize their educational path by choosing from various electives alongside compulsory courses in foundational environmental theories and impact assessments. This allows for a personalized focus aligned with individual career objectives.

Second Semester: The curriculum shifts towards enhancing research methodology and scientific publication skills, culminating in the preparation of thesis proposals.

Third and Fourth Semesters: These semesters are devoted to thesis completion and striving for an international publication, applying theoretical knowledge to practical environmental issues.

Overall, the programme emphasizes a balance between personalized academic development and practical skills in environmental management, preparing students for impactful careers in the field.

The MPPD follows a similar structure to the MPEM.

First Semester: The programme begins with compulsory courses in Management Strategy of Plant Pest and Disease, Plant Disease Epidemiology and Management, and Insect Ecology, which lay a strong foundation in the core principles of plant pathology and pest management. Students also have the opportunity to choose from a wide range of electives such as Precision Technology for Pest Diagnosis, Bioecology of Endophytic Microbes, Plant Nematology, and others. These electives allow students to specialize further, exploring diverse

aspects of plant pest and disease management from molecular biology applications to the interaction of insects with plants and diseases.

Subsequent Semesters: Focus is on deepening research skills and applying the knowledge to practical and scientific challenges in the field. Students engage in advanced research methodologies, work on their thesis, and aim for publication in international journals. This phase is crucial for students to apply their specialized knowledge to address real-world problems in plant pest and disease management.

Overall, the programme is designed to offer a comprehensive and flexible learning environment that encourages students to tailor their studies to their interests while providing them with the tools to become experts in their field.

In summary, the auditors gain the impression that the graduates of all four programmes under review are well prepared for entering the labour market and can find adequate jobs in Indonesia. During the discussion with the auditors, UNHAS's partner from the industry/public sector confirm that the graduates have a broad scientific education, are very adaptable, and have manifold competences, which allows them to find adequate jobs. The structure of the programmes under review is clearly outlined on the subject specific website for each study programme. The programmes consists of modules, which comprise a sum of teaching and learning. The module descriptions are also published on the subject specific website. Based on the analysis of the sequence of modules and the respective module descriptions the experts concluded that the structure of all programmes ensures that the learning outcomes can be reached. The programmes also offer several elective courses, which allows students to define an individual focus. Based on the analysis of the curriculum and the module descriptions, the experts confirmed that the objectives of the modules and their respective content help to reach both the qualification level and the overall intended learning outcomes.

However, there are also some areas that can be improved concerning the curricula:

The integration of climate change, both as a standalone concept and in relation to its impacts across various subjects, has emerged as a significant focus in the master's degree programmes at UNHAS. This critical issue was previously discussed in Chapter 1.1. The experts emphasise the importance of comprehensively addressing climate change within these programmes, advocating for a thorough understanding of the topic at the master's level where students are expected to tackle complex, interdisciplinary challenges.

Incorporating climate change into the curriculum not only enriches the academic experience but also equips students with essential knowledge and skills to effectively address and manage the multifaceted effects of climate change in their future careers. This approach

ensures that graduates are well-prepared to contribute meaningfully to global efforts aimed at understanding and mitigating climate impacts.

While the inclusion of climate change is also advocated for in the bachelor's degree programmes to build foundational knowledge, it is deemed more crucial at the master's level. Here, students can engage more deeply with specialised topics, applying advanced concepts and solutions to real-world challenges posed by climate change. Thus, embedding climate change education in master's programmes is seen as imperative for developing high-level expertise and leadership in this field.

Building on the observations made in the previous chapter regarding the inclusion of national standards of AMDAL in the MPEM curriculum, it is imperative to further expand this scope to encompass international standards. As noted, the integration of Life Cycle Assessment (LCA) methodologies and principles is crucial for providing a holistic view of environmental impacts across a product's lifecycle. By doing so, students will gain not only theoretical knowledge but also practical skills applicable on a global scale, thereby significantly enhancing their capability to address complex environmental issues both locally and internationally. This approach will prepare graduates to operate effectively in diverse settings, bridging the gap between local practices and international standards.

One other area identified for potential improvement is the current requirement for students to publish. While recognising the value of the emphasis on journal publication in both Master's programmes, the experts suggest that consideration be given to an additional coursework-based pathway in the Master's programmes. This alternative pathway would allow students to further develop essential research skills such as formulating hypotheses, formulating precise research questions and identifying the necessary evidence. Offering this dual approach would broaden the academic options available to students and enhance their range of competencies in their respective fields.

Mobility

In order to support the international mobility of students the faculty has established several student exchange programmes with international universities and offers organizational and financial support for students studying abroad.

UNHAS has also implemented the Independent Learning Campus (MBKM), an initiative started by the Ministry of Education and Culture of the Republic of Indonesia aimed at student exchange. The Independent Student Exchange is an inter-island student exchange for one semester that provides an experience of the archipelago's diversity and a credit transfer system between universities equivalent to 20 credits.

While the auditors indubitably see that UNHAS is working hard to support the international mobility of their students, they believe that there is still a lot more that could be done. From the discussion with the students, the auditors learn for example that they wish for more international collaborations and opportunities for student exchanges, also outside the Asian world. In addition, it would be beneficial for UNHAS to invite international guest lecturers (such as DAAD / German Academic Exchange Service long term guest lecturers), to seek collaboration with international research institutes, to offer international webinars for both students and lecturers, and to offer more courses taught in English to better prepare students for international mobility. Finally, they stress the importance of better communication about funding opportunities for these activities.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report
- Academic Guidelines
- Discussions during the audit

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

The admission criteria for Bachelor Programmes at UNHAS encompass three primary selection pathways: National University Entrance Selection (SNBP), Joint Entrance Test for State Universities (SNBT), and Independent selection pathways. These pathways are designed to ensure transparency and fairness in the selection process, providing equal opportunities for students from diverse educational backgrounds.

The National University Entrance Selection (SNBP) and Joint Entrance Test for State Universities (SNBT) are national-level examinations conducted through the relevant government agencies. These exams evaluate students' academic abilities and are open to all senior high school students in the country.

The Independent selection pathway offers additional avenues for admission, including:

1. Independent Pathway: This pathway involves assessment based on SBMPTN test results and interviews conducted by UNHAS' assessment team. It allows the univer-

sity to select candidates based on their academic performance and personal qualities.

2. Achievement Path: This pathway considers candidates' achievements in extracurricular activities such as leadership roles in school organisations (OSIS) and Quran memorisation (Hafidz). Alongside these achievements, candidates are evaluated based on SBMPTN test scores, psychological assessments, English proficiency tests, and interviews.

For Master Programmes, admission occurs each semester and follows the policies outlined by the university chancellor as per Regulations Rector Number: 36621/UN4.1/PP.37/2017 (Article 8) and Regulation Chancellor 2784/UN4.1/KEP/2018 (Article 9). The admission mechanism requires candidates to meet certain academic criteria, including holding a bachelor's degree or equivalent from an accredited study programme, achieving a minimum cumulative Grade Point Average (GPA) of 2.75, and completing the necessary administrative requirements.

Once candidates have passed the administrative stage, they undergo a selection process that may involve written and oral exams or evaluation and assessment of a portfolio by the respective Faculty/School and intended study programme. Candidates who pass this stage proceed to register through the university's new student acceptance portal.

The capacity for admitting candidate master's programme students is determined based on the proposed study programme's capacity, considering the ratio of lecturers to students and available facilities within the faculty. The submission of power is granted to the faculty to organise the admission process for new master's students at UNHAS, ensuring efficient management and oversight of the admissions process.

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

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

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report
- Study plan of the degree programmes
- Module descriptions
- Curriculum Handbooks
- Statistical data on study progress and failure rate
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Based on the National Standard of Higher Education of Indonesia, all programmes use a credit point system called SKS, which is regulated as follows:

• 1 CP of teaching covers 50 minutes contact hours + 60 minutes assignment/tutorial + 60 minute of self-studies

• 1 CP of practical work covers 170 minutes

• 1 CP of seminar covers 170 minutes

In comparison to the ECTS credit system, where 1 ECTS corresponds to 25-30 hours of student work, it is noted that 1 CP is awarded for different amounts of work, depending on the type of study. For example, 1 credit point for lectures is equivalent to 50 minutes, while 1 credit point for practical sessions is equivalent to 3 hours of work. Student workload (contact hours and self-study) is measured in Indonesian Credit Points (CP) and converted to the European Credit Transfer System (ECTS). According to the law, an undergraduate programme in Indonesia can have between 144 and 150 SKS, while the actual number is 144 SKS (244.8 ECTS) for the BPF and 147 SKS (249.9 ECTS) for the BPAE.

The Master's programmes range from 36 SKS (61.2 ECTS) to 42 SKS (71.4 ECTS) and have a similar workload. The MPPD uses the full range, depending on the choice of courses, and the MPEM requires students to complete 41 credits (69.7 ECTS).

The workload is relatively evenly distributed, with each semester containing between 14 and 24 SKS according to the regular study plan. The number of regular modules is significantly reduced during the thesis work phase for all programmes, as well as during the job search phase. The effective number of credit points that students can take depends on their average grade point average (GPA), but the maximum number of credit points is 24. This mechanism is designed to ensure that students can actually cope with the workload. It also means that students can theoretically complete their studies in less than 8, or 4 semesters,

but due to the generally high workload this is a rather rare phenomenon. The experts believe that the Indonesian system, in which students' workload per semester depends on their average grades in the previous semester, is a sound concept. Students' individual study plans are different, but have to be approved by their academic advisors.

The experts also noted positively that the module handbook consistently describes credit points and workload across all modules, effectively distinguishing between contact time and self-study time.

UNHAS provides statistical insights into the average duration of student studies, revealing a trend where the programmes under review, align well with their designated study durations. Students in the master's degree program are consistently able to complete their studies on time, or even ahead of the standard duration. However, both bachelor degree programmes exhibit a slight extension beyond the desired study period. Notably, the study duration of the BPAE programme appears to deviate significantly from expectations.

The university cited several factors potentially responsible for the extended study period, including challenges associated with finding suitable supervisors and thesis topics, disruptions stemming from the Covid pandemic, and the inherent complexities of research involving living materials.

During the audit, it became evident that the primary challenge faced by students at UNHAS revolves around the organization of the thesis writing and preparation process. This issue, which is crucial to students' academic success and timely graduation, appears to be an organisational problem that UNHAS should be able to address easily.

The experts strongly encourage UNHAS to take decisive steps to improve how students are prepared for the thesis writing phase. It is recommended that the university establish a detailed timeline and guidelines for the thesis process. This should include specific milestones for when students should begin their thesis and the optimal times for topic development. Such a structured approach will facilitate a smoother initiation into the thesis phase, enabling students to progress more confidently and complete their academic requirements within the standard study period. Implementing these changes will not only enhance the efficiency of the thesis process but also contribute to a more supportive academic environment for students.

Overall, student feedback indicates a generally positive perception of workload across all programmes. However, the experts consider that it would be beneficial to address the organisational issue of the thesis in the BPAE.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report
- Information on procedures of seminars, field practices and theses writing
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The staff members of UNHAS apply various teaching and learning methods like interactive lecture, small group discussion, demonstration, collaborative learning, discussion, case study, project based learning, laboratory practice, presentation and software simulation.

The experts appreciate the small projects implemented in different modules in all programmes in order to establish project based learning. In general, the experts see a wide variety of teaching methods and didactic means used to promote achieving the learning outcomes and support student-centered learning and teaching. UNHAS introduced an online Learning Management System (SIKOLA) in order to monitor the teaching methodology that is applied and make accessible the various course materials. Therefore, each teacher or professor must upload his or her teaching materials and working procedures on SIKOLA.

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

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

Criterion 1.1 & 1.3

UNHAS has clarified in its statement that climate change is incorporated into every programme under review. While the experts appreciate this clarification, they recommend that the integration of climate change be more visibly reflected in the module descriptions and the overall ethos of the programmes.

UNHAS asserts that soft skills are integrated from the learning outcomes down to the course level, a statement that the experts find commendable on paper. They encourage

UNHAS to validate these claims through outcomes, especially since employers have highlighted these skills. The experts acknowledge that the development of soft skills has practical limits at the university level, but they appreciate UNHAS's efforts to address these needs within those constraints.

Life Cycle Assessment (LCA):

The experts are pleased to learn that LCA is included in the Environmental Quality Management course. However, they note that this is only an elective course and that the module objective and content are not relevant to LCA. Therefore, they suggest that the MPEM programme should extend the integration of LCA into compulsory courses to improve students' understanding and application of this critical skill, underpinned by practical training units with case studies.

Regarding student publication support, UNHAS describes a robust system aiding students in publishing papers. The experts recognize this support but clarify that their recommendation was aimed not at the publication aspect but at suggesting UNHAS to allow students to graduate without the necessity of publication. They advocate for an approach that prioritizes gaining hands-on research experience over just the skill to publish, thereby enriching the students' practical research skills.

International Mobility:

The experts commend UNHAS for its efforts to internationalize its student and lecturer base, as well as for incorporating guest and visiting lecturers, which they find praiseworthy. However, they note a lack of data on the number of students participating in semester-long studies abroad. While the audit revealed some incoming international students at UNHAS, the experts believe that outward student mobility appears relatively limited. This is why the expert conclude that students should be supported more in the process. Nonetheless, they acknowledge UNHAS's extensive international connections and are optimistic that these will eventually enhance exchange opportunities for both students and faculty.

Criterion 1.5

The experts are pleased with the changes implemented in the BPAE program which have significantly reduced the study duration. They are encouraged by the latest data, which suggests that these modifications have markedly improved the situation.

The experts consider criterion 1 to be **mainly fulfilled**.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report
- Module descriptions
- Academic Guidelines
- Academic Calendar
- Sample exams and theses
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Each course has to determine objectives, which support the achievement of the Programme Learning Outcomes of the respective programme. Accordingly, each course must assess whether all defined learning outcomes stated in the module description have been achieved.

According to the self-assessment report, quizzes, tests, practical performances, assignments, small projects, reports and presentations are employed to assess the students' achievement of the learning outcomes. At the first meeting of a course, the students are informed about what exactly is required to pass the module. The form and length of each exam is mentioned in the course descriptions that are available to the students via UNHAS' homepage and the Learning Management System (SIKOLA). It is common to hold small quizzes every two or three weeks, but there are generally no unscheduled tests. The students are informed about mid-term and final exams via the academic calendar. The final grade of each module is calculated based on the score of these individual kinds of assessment. The exact formula is given in the module handbook. UNHAS uses a grading system with the grades A, A-, B+, B, B-, C+, C, D and E, where a D (equivalent to a Grade Point of 1) is necessary to pass a module.

Based on the academic regulation to be eligible to take final exam, students must attend at least 80% of the total course sessions. On the other hand, students must attend all lab work activities in order to get a practice examination permit. Students who have not yet reached the minimum achievement criteria have to join the remedial programme which is an additional programme that should help them improve their unsatisfactory results. The lecturers will provide several alternatives such as a second trial of exams or additional assignments. The remedial program allows students to fix their shortcomings and finish the course on time with satisfactory results and is meant to shorten the study period.

The experts discuss with the students how many and what kind of exams they have to take each semester. They learn that for most courses there is one mid-term exam and one final

exam in every semester. For other courses, there is only one final exam in every semester. Usually, there are additional practical assignments or quizzes. The final grade is the sum of the sub exams. The students appreciate that there are several short exams instead of one big exam as this requires them to continuously study during the entire semester and not having to solely work for one final exam at the end of the semester. The students also confirm that they are well informed about the examination schedule, the examination form and the rules for grading.

Every student is required to complete a final thesis in the fourth year for Bachelor programmes or the second year for Master programmes. Prior to the actual research work, the students are required to write a research proposal and present it in a seminar attended by lecturers and other students who form a research group. The research proposal has to be accepted by the Dean and the supervisor committee who will then appoint the research supervisors. Usually, there are 2 research supervisors for each student. One will act as the principal supervisor and the other act as co-supervisor. In case the student writes her or his thesis in collaboration with the industry, she or he is also assigned a supervisor from the industry. After completing the work on the thesis, the student has to present and defend the results in front of teachers and fellow students.

In the Master's programme, UNHAS students are required to publish their articles in different types of journals according to the examination criteria. These include Scopus-indexed international journals in the Q1, Q2, Q3 and Q4 categories. In addition, students can submit their work to Scopus-indexed proceedings and international journals that are either under review or accepted.

However, despite the publication opportunities available, a recent student survey conducted by UNHAS revealed that students still need significant support to effectively publish their articles. Recognising this need, UNHAS has undertaken initiatives to address this challenge and improve support mechanisms for students.

The experts expressed their approval of UNHAS's initiative to encourage students to publish articles, which underscores the university's dedication to promoting a robust research culture and enhancing scholarly dissemination among its students. This proactive approach not only enriches the educational experience but also elevates the university's academic standing.

Nonetheless, the experts reiterated a suggestion previously discussed in Chapter 1.3, advocating for an additional pathway in the Master’s programmes focused on coursework. This would offer students the opportunity to develop a comprehensive skillset centred

around addressing key research challenges, such as hypothesis formulation, crafting precise research questions, and identifying necessary evidence. This dual approach would diversify the academic options available to students, fostering a broader range of competencies in their respective fields.

The experts discuss with the programme coordinators, the members of the teaching staff, and the students about the process of finding suitable topic of the thesis. Basically, there are two possibilities. Either students can propose their own ideas or they can ask their academic advisor or other teachers for suggestions. The experts also inspect a sample of examination papers and final theses and are overall satisfied with the general quality of the samples.

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

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

UNHAS' comment on criterion 2 was discussed in chapter 1.

The experts consider criterion 2 to be **fulfilled.**

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report
- Staff Handbook
- Study Plans
- Module descriptions
- Sample of lecturer workload report
- Rector regulation on selection and dismissal of lecturers and administrative staff
- Discussions during the audit

Preliminary assessment and analysis of the experts:

At UNHAS, the staff members have different academic positions. There are professors, associate professors, assistant professors and lecturers. The academic position of each staff

member is based on research activities, publications, academic education, supervision of students, and other supporting activities. For example, a full professor needs to hold a PhD degree. In addition, the responsibilities and tasks of a staff member with respect to teaching, research, and supervision depend on the academic position.

The faculty staff across the various study programs at the university exhibit strong qualifications and a healthy student-faculty ratio, which are important factors for delivering quality education. The following table summarises the staff composition of the programmes under review:

Programme of Study	Professor	Associate Professor	Assistant Professor	Total
BPF	13	18	25	56
BPAE	4	12	5	21
MPPPD	7	3	4	14
MPEM	21	8	0	29

All members of the teaching staff are obliged to be involved in teaching/advising, research and community service. As the experts learn during the audit, all teachers have a workload between 12 to 16 credits per semester. However, the workload can be distributed differently between the three areas from teacher to teacher. In all labs a special lab staff for supporting the student practice is involved.

Based on their evaluation, the experts determined that the study programmes at UNHAS generally meet national standards, particularly regarding the staff-to-student ratio. Notably, the master's programmes often provide close to one-to-one supervision. However, despite adequate numbers, the review process unearthed areas needing enhancement.

Initial concerns arose due to the absence of listed research topics for each staff member in the submitted documents, leading to the incorrect assumption that some staff might not be actively engaged in research. Further discussions clarified that all staff members are required to conduct research, though some allocate more time to teaching and administrative duties. To prevent future misunderstandings, the experts recommend that UNHAS clearly document staff research topics in future submissions.

During the audit, the experts identified two significant concerns. Firstly, they noted the absence of a dedicated professor for Data Handling in the Master's degree programmes.

While various lecturers currently cover this topic, the lack of a specialized expert is problematic given the growing importance of data handling in modern scientific research, particularly in fields like Plant Pest Disease and Environmental Management where precise data analysis is critical for effective decision-making and innovation.

The second issue pertains to the BPF, where it was observed that there is no appointed specialist for Soil Science. This vacancy has arisen due to the passing of the formerly appointed colleague, leading to poorly maintained facilities and the absence of necessary monitoring. Soil science is vital in forestry programmes, especially for those seeking international recognition, as it underpins sustainable forest management and ecological conservation.

To address these deficiencies, the experts expect UNHAS to develop a staff development plan tailored to each programme. This plan should outline general areas for improvement and specifically address the integration of expertise in Data Handling and Soil Science, ensuring that faculty capabilities align with the evolving demands of their respective fields.

The university supports research activities of the teaching staff by giving incentives for publishing scientific articles in reputable international journals, financing participations on national and international scientific conferences and giving grants for research projects.

Over all the experts see an appropriate network of the university and the department with national and international research institutions.

The “Green campus” of the Hasanuddin University represents a challenging and partly successful initiative. More integration of student practical course work in the respective campus planning, like analysis of energy flows and life cycle analysis, especially in the MPEM programme could considerably upgrade the initiative.

In summary, the experts found a solid human resources base, but also some room for improvement in certain areas, which should be addressed through a staff development plan.

Development:

UNHAS encourages the training of its academic and technical staff, so it has developed a programme for improving the didactic abilities and teaching methods. One part of the capacity-building programme focuses on subject-specific skills, whereas other training courses are intended to further improve the teachers’ didactic skills and to introduce new teaching methods. There are financial resources available for staff members to go abroad for a limited time and to take part at conferences or other events in order to stay up to date with the scientific development in their area of expertise.

The experts discuss with the members of the teaching staff the opportunities to develop their personal skills and learn that the teachers are satisfied with the internal qualification programme, their opportunities to further improve their didactic abilities and to spend some time abroad to attend conferences, workshops or seminars; even a sabbatical leave is possible.

In summary, the auditors confirm that the university offers sufficient support mechanisms and opportunities for members of the teaching staff who wish to further develop their professional and teaching skills.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Support and assistance for the four programmes under review is provided at both programme and university level.

During the course of their studies, each student is assigned at least three, and usually four, advisors. The first is an academic supervisor, who guides the student throughout their studies and provides support in both academic and non-academic matters. The second is the designated thesis supervisor, whose primary role is to assist and support the student in planning, conducting research and writing the dissertation. The third supervisor oversees field placements and compulsory internships.

At the university level, a student development body has been established to provide assistance and support, empowering students and alumni through job application training. The University also provides counselling services for students facing personal problems or other challenges.

In addition, UNHAS hosts various student organisations, including activity clubs focused on the arts, sports, religion and other extracurricular pursuits. The experts observed a strong and trusting relationship between students and staff. A wealth of resources are available to provide individual help, guidance and support to all students. This robust support system facilitates the achievement of intended learning outcomes and enables students to successfully complete their studies without unnecessary delay. Students are well informed about the range of services available to them.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report
- On-Site Visit
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The auditors learned that financial sources for UNHAS originate from a variety of sources including government research funding, societal funds, tuition fees, and contributions from numerous stakeholders. Notably, many lecturers receive funding from diverse entities such as the Indonesian Ministry of Education, Culture, Research and Technology, the Provincial Government of South Sulawesi, the Local Government of the City of Makassar, other cities and regencies in the South Sulawesi Province, non-governmental organizations, international donors, alumni, and also self-funding. These funds are predominantly utilized to support both lecturers' and students' research projects, contributing significantly to the university's research capabilities.

Operational funds at UNHAS are allocated to the faculties based on a specific formula that considers various factors, including the number of students. From the documents provided, particularly the strategy outlined for the coming years, the auditors are convinced that the financial resources are sufficient and secure for the timeframe of accreditation. This comprehensive funding strategy ensures that UNHAS is well-equipped to support its educational and research objectives effectively during the accreditation period and beyond.

During the on-site visit, the auditors conducted a comprehensive assessment of the infrastructure and equipment across the various faculties at UNHAS, encompassing classrooms, laboratories, preparation rooms, administrative facilities, seminar, and examination rooms. This evaluation highlighted the institution's commitment to supporting both practical work and research, with well-equipped facilities designed for extensive laboratory and field activities.

A noteworthy addition has been made in the forest faculty with the establishment of an innovative, action-oriented laboratory that actively involves students in ongoing research processes concerning forest and land-use transformation. This is complemented by the Hasanuddin Teaching Forest in Bongo, situated approximately 60 km from Makassar city. This 1,400-hectare site serves as a practical learning environment, complete with laboratories and hosting facilities, allowing for practice-oriented teaching in a real forest setting.

A key highlight from the visit was the exploration of the biomolecular-related laboratory within the MPAE study programme. This laboratory is at the forefront of research and practical work in biomolecular studies, contributing significantly to advancements in this vital scientific field. The work conducted here not only furthers academic knowledge but also addresses real-world challenges within the industry.

In addition to these facilities, the Master Programme in Plant Pest and Disease (MPPD) demonstrates effective alumni engagement, with significant contributions including the donation of a fully equipped minibus. This vehicle, outfitted with essential laboratory tools like loupes, identification books, an insectarium, and microscopes, enables lecturers and students to perform direct field diagnostics on plant diseases and pest issues in agricultural settings.

The programme capitalises on this asset by organising weekly field trips, where faculty and students collaborate with local farmers to diagnose and solve plant health issues. This practical application of theoretical knowledge fosters a dynamic and collaborative learning environment.

Moreover, the MPPD Study Programme actively promotes community engagement by offering farmers opportunities to visit the campus and consult with experts on specific agricultural challenges. This initiative not only bridges the gap between academic research and practical application but also enhances the impact of the university's academic expertise on local farming practices, thereby enriching the educational experience for students and contributing to the community.

In reviewing the facilities available, the experts identify areas for improvement to enhance the depth and experience of teaching and learning. They summarise their findings as follows

While the existing facilities are considered mostly adequate for teaching, the reviewers note a lack of advanced equipment. Some advanced equipment for analyses is not fully in use because of the running costs. The experts recognize that the current quality and quantity of teaching equipment might pose a challenge to effective teaching and research. In light of this, the experts recommend that UNHAS prioritize upgrading existing teaching equipment.

Additionally, the experts recommend establishing an integrated laboratory at UNHAS. An integrated laboratory would consolidate various disciplinary tools and technologies into a single, multifunctional space, fostering interdisciplinary research and collaboration among

students and faculty across different departments. This approach not only optimizes resource use but also enhances learning outcomes by exposing students to a broader range of techniques and methodologies within a cohesive environment. Establishing such a facility would position UNHAS to better meet the evolving demands of scientific research and higher education, ultimately strengthening its academic and research programmes.

During their visit to the BPF, the experts observed a noticeable decline in both the laboratory and equipment dedicated to soil science. To address this, it is essential not only to appoint a new person responsible for this area but also to implement a robust maintenance and monitoring plan for the facilities. This strategy will ensure that the equipment and laboratory conditions meet the required standards for effective teaching and research.

Based on their review of the module handbooks and discussions during their visit, the experts identified that the availability of international literature across all programmes at UNHAS is currently limited. While this limitation is not seen as problematic for the bachelor's programmes, where foundational knowledge and local context remain pivotal, the experts stress the necessity for broader access to international literature in the master's programmes. They argue that for advanced studies, exposure to a diverse array of global perspectives and research is crucial. This not only enriches the learning experience but also ensures that the curriculum remains competitive and relevant on an international scale. Therefore, it is essential that the integration of a wider range of international literature is supported by ensuring its availability within the university's resources, facilitating a more comprehensive educational approach in the master's programmes.

During the visit to the facilities of the MPPD, it became apparent that comprehensive safety instructions and measures are currently lacking. Laboratory protocols and procedures must adhere to established guidelines to ensure the safety of all individuals involved. This oversight poses a significant risk, as the nature of work within this field often involves hazardous materials and complex equipment. Implementing rigorous safety protocols not only minimizes the risk of accidents and injuries but also fosters a secure and productive research environment. Therefore, it is crucial that the program develops and enforces detailed safety guidelines that are readily accessible to students and staff, aligning with best practices in laboratory safety.

Throughout the audit process, the experts visited the administrative buildings and the central library, gaining valuable insight into the overall infrastructure of the university. The focus of these visits was to assess the accessibility and availability of literature resources. After a thorough analysis of the existing literature and online journal subscriptions, the experts found that the digitisation of the resources available in the library was not complete. It is unclear whether an international research database is available.

Overall, the on-site visit provided valuable insights into the study programmes' infrastructure, equipment, and ongoing activities. The auditors were able to witness first-hand the efforts being made in areas such as biomolecular studies and agricultural product mechanization, which are of great importance in today's scientific and industrial sectors. The visit reaffirmed the study programmes' dedication to fostering a dynamic and innovative learning and research environment.

In summary, the experts confirm that current funding at UNHAS adequately supports the maintenance of standards and the acquisition of additional necessary equipment. UNHAS boasts sufficient workspace and laboratories, most of which are equipped with modern instrumentation. However, there is room for improvement in the quality and quantity of teaching equipment, as well as the potential to enhance teaching and research facilities, possibly through collaborations.

Specific areas identified for improvement include enhancing safety standards within the Master Programme in MPPD, upgrading the condition of the soil science laboratories, and expanding access to international literature for master's students. These enhancements are essential to ensure that UNHAS not only maintains but also elevates its educational and research standards to meet international benchmarks effectively. Addressing these three lines of improvement will help strengthen the university's capabilities and reputation in the academic community.

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

Criterion 3.1

UNHAS has responded to the experts' previous concerns regarding the lack of visibility of staff research topics. Revised staff handbooks now attached to the statement include the research topics of all lecturers. The experts are pleased with these updated documents, which not only align with the explanations provided during the audit but also confirm that each staff member is actively engaged in research.

The experts commend UNHAS for responding positively to their critique regarding Data Handling and for showing a willingness to revise the curriculum accordingly. However, they stress the need for UNHAS to develop a strategic plan to hire a designated specialist in Data Handling to ensure the effective integration and teaching of this critical skill within the curricula..

The experts are pleased to learn that UNHAS has proactively filled the vacant position in Soil Science and is planning to upgrade the related facilities, staff and equipment. They

appreciate these efforts and maintain their request, looking forward to seeing the proposed changes fully implemented within the next year.

While UNHAS has indicated that all programmes have developed a staff development plan, they have not submitted any evidence to support this claim. Consequently, the experts continue to uphold their recommendation for UNHAS to provide proof of these development plans.

Criterion 3.3

UNHAS has outlined a phased plan to upgrade equipment, which the experts commend, particularly noting the allocated budget for enhancing teaching and learning tools across all programmes. They are pleased with the approach and anticipate seeing continual improvements in the facilities. They are looking forward to see the implementation in the soil science laboratory since the current equipment is rather basic and does not cover the needs of a land-use related faculty.

UNHAS has acknowledged the current lack of appropriate safety instructions and measures and is committed to addressing this issue promptly. The experts are pleased with this commitment and look forward to seeing these necessary safety enhancements implemented effectively.

The experts consider criterion 3 to be **fulfilled** for BPAE but **not yet fulfilled** for the other three programmes.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Module Handbooks

Preliminary assessment and analysis of the experts:
Students, as well as all other stakeholders, have access to the module descriptions via the UNHAS homepage. The more detailed syllabus (RPKPS) is handed out to the students by the lecturers at the beginning of the semester. The RPKPS includes a practical guideline and detailed description of the practical parts of each course.

Having examined the module descriptions, the experts confirm that they contain all the necessary information about the persons responsible for each module, the teaching methods and workload, the credit points awarded, the intended learning outcomes, the content,

the applicability, the admission and examination requirements and the forms of assessment, as well as details explaining how the final grade is calculated.

However, on closer examination of the module handbooks, the experts found that some of the references were somewhat out of date. This finding highlights the need for periodic updates to ensure students have access to recent and relevant academic resources. Furthermore, the experts identified a noticeable gap in the availability of international literature, especially within the Master's degree programmes, where exposure to global perspectives is crucial. Therefore, they recommend that UNHAS moderately update the literature references across all programmes and consider a more substantial integration of international literature specifically for the Master's degree programmes to enhance students' global awareness and academic experience.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

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

Preliminary assessment and analysis of the experts:
The experts confirm that the students of all programmes are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Diploma Supplement provides most of the necessary information about the degree programme, including acquired soft skills and awards (extracurricular and co-curricular activities). The Transcript of Records lists all the courses that the graduate has completed, the achieved credits, grades, cumulative GPA, and mentions the seminar and thesis title.

However, it is noteworthy that the Diploma Supplement currently does not include information on the relative grade of the student in comparison to their cohort. This addition is essential as it provides valuable context for employers and institutions to assess the academic performance of graduates in relation to their peers, ensuring transparency and facilitating informed decision-making in recruitment and further education.

Criterion 4.3 Relevant Rules

Evidence:

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

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

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

Criterion 4.1

The experts are pleased with the list of subscribed journals provided by UNHAS and acknowledge that these journals offer a suitable level of current literature to students. However, they are still awaiting updated module descriptions that reflect the usage of these resources and specifically highlight how climate change is incorporated into the courses.

Criterion 4.2

The experts find that the sample provided for the Diploma Supplement effectively communicates the relative grades of students, indicating its adequacy for the intended purpose.

The experts consider criterion 4 to be **mainly fulfilled.**

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Academic Guidelines
- Quality standards of the university
- Results of the Tracer Studies
- Samples of teaching evaluations and surveys
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Based on the Self-Assessment Report, the Quality Management System at UNHAS is a comprehensive and multi-layered system that operates at various levels within the university structure. It is structured in the following way:

At the University Level:

- The University has an Internal Quality Assurance System Policy and follows national regulations regarding quality assurance in higher education.
- The Institute for Quality Assurance and Educational Development (IQAED) is responsible for planning, implementing, controlling, and developing the academic quality assurance system across the university.
- IQAED coordinates with national and international accreditation institutions for external evaluation.

At the Faculty Level:

- Each faculty has a Quality Assurance and Reputation Improvement Unit (QARIU) that coordinates with IQAED for internal evaluation and quality assurance processes.
- The faculty-level QARIU assists the study programs in implementing the quality assurance system.

At the Study Programme Level:

- Study programmes have Quality Assurance Units that work with the faculty-level QARIU to implement quality assurance processes.
- Regular internal quality audits are conducted annually by IQAED, involving representatives from students, alumni, and lecturers as respondents.
- Study programmes conduct self-evaluations, including performance analysis, problem identification, corrective action plans, and performance targets.
- The results of internal audits are discussed in management review meetings to plan follow-ups and improvements.

Key Quality Assurance Processes:

- Curriculum reviews and revisions are conducted regularly, typically every 4-5 years, to align with industry trends and stakeholder needs.

- Assessment of Programme Learning Outcomes (PLOs), Intended Learning Outcomes (ILOs), and Course Learning Outcomes (CLOs) is carried out through various methods, including surveys, focus groups, and student performance data analysis.
- Stakeholder feedback is obtained through surveys involving students, alumni, employers, and industry partners.
- External quality assessments are conducted through national accreditation processes (e.g., BAN-PT) and, in some cases, international accreditations (e.g., AUN-QA).

The auditors discuss the quality management system at UNHAS with the programme coordinators and the students and how it works in practice. They learn that there is a well-structured continuous process in order to improve the quality of the degree programmes and it is carried out through internal and external evaluation.

The results of internal quality assessments are evaluated on faculty level attended by the dean, vice deans, heads of departments, heads of laboratories, degree programme managements and the Quality Assurance Unit.

Since UNHAS is striving to become an internationally acknowledged university, the reliance on students' feedback and the necessity to ensure and improve the employability of the graduates are of major importance to the coordinators. Internal evaluation of the quality of the degree programmes is mainly provided through student, alumni and employer surveys. The students give their feedback on the courses by filling out the questionnaire online. The course evaluations are conducted at the end of each semester; the questionnaire was developed by the course survey committee and includes questions with respect to the course in general and about the teachers' performance. Further surveys are carried out by gathering statistics about graduates and alumni. The discussion with the students revealed that those in charge are always eager and open for feedback aside from the official evaluations and that students have the impression that their comments are taken into consideration with regard to the further improvement of the programmes. This becomes apparent in the constant curricular revision process that is performed under participation of students and industry partners. The industry representatives confirm in the discussion that the university is eager to receive feedback about new developments and trends and the employability of their graduates.

Concerning the internal feedback loops the results of the course evaluations are centrally assessed and analysed before they are communicated to the Head of Department. He would then be responsible to initiate any measures if problems or needs for improvement have been detected. A summary of the results is made accessible to the students. In case

the satisfaction of the students with staff members is deficient, the Heads of Department will contact the respective teacher, discuss the issue and propose solutions. If no improvement can be achieved over a longer period, the staff member will be dismissed. Thus, the experts agree that the quality management circles at UNHAS are well established and work under participation of all stakeholders.

While the Quality Management (QM) System at UNHAS is proficient in pinpointing areas for development, the experts suggest two strategic enhancements to optimise its effectiveness further. They propose the establishment of advisory boards comprising external stakeholders at the faculty level. This integration would bring valuable industry insights into the curriculum, thereby enriching academic programs with practical and current industry practices, strengthening the university's collaboration with the professional world.

Additionally, the experts recommend expanding the number and diversity of job fairs offered by UNHAS. This increase would provide students with greater opportunities to connect with potential employers, explore various career options, and understand the evolving dynamics of the job market. Such enhancements are aimed at ensuring UNHAS graduates are well-equipped and competitive in the global job market, aligning with the proactive identification of improvement opportunities highlighted by the existing QM system.

In summary, the expert group confirms that the quality management system is effective in identifying weaknesses and improving programmes. All stakeholders are involved in the process.

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

The experts are satisfied with the array of job fairs and initiatives implemented by UNHAS to facilitate students' connection to the job market, as detailed in the university's statement. They also value UNHAS's consideration of introducing advisory boards at the faculty level, acknowledging the limitations of this recommendation. The experts remain eager to see the outcomes of these developments.

The experts consider criterion 5 to be **fulfilled.**

D Additional Documents

No additional documents needed.

E Comment of the Higher Education Institution (27.05.2024)

The institution provided a extensive statement as well as the following additional documents:

- […]

F Summary: Expert recommendations (03.06.2024)

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Forestry	With requirements for one year	30.09.2029		
Ba Agricultural Engineering	With requirements for one year	30.09.2029		
Ma Plant Pest and Disease	With requirements for one year	30.09.2029		
Ma Environmental Management	With requirements for one year	30.09.2029		

Requirements

For all programmes

A 1. (ASIIN 1.3, 4.1) Make the integration of climate change content and up to date literature visible in the module descriptions.

For the Master's degree programmes

A 2. (ASIIN 3.1) Expand the academic team by appointing a professor specializing in data handling.

For Ma Plant Pest and Disease

A 3. (ASIIN 3.3) Implement comprehensive safety instructions and measures within laboratory protocols and procedures.

For Ma Environmental Management

A 4. (ASIIN 1.1, 1.3) Integrate Life Cycle Assessment methodologies and principles into relevant courses and academic materials.

For Ba Forestry

A 5. (ASIIN 3.1, 3.3) Develop a comprehensive development plan outlining strategies to enhance the situation in soil science, focusing on improvements to staffing, laboratory facilities, and equipment.

Recommendations

For all programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to offer more opportunities for students to improve their soft skills.

E 2. (ASIIN 1.3) It is recommended to offer more courses in English.

E 3. (ASIIN 1.3) It is recommended to enable and motivate students more to go abroad (e.g. by offering more scholarships, providing information about scholarships, etc.).

E 4. (ASIIN 3.1) It is recommended to create a comprehensive staff development plan that encompasses both general areas of improvement and specifically addresses innovative subjects.

E 5. (ASIIN 3.3) It is recommended to improve the quality and quantity of the equipment.

E 6. (ASIIN 3.3) It is recommended to establish an integrated laboratory.

E 7. (ASIIN 5) It is recommended to establish advisory boards with external stakeholders on faculty level.

For the Master's degree programmes

E 8. (ASIIN 1.3) It is recommended to explore the possibility of introducing a second path, allowing students to study through coursework.

G Comment of the Technical Committee 08 – Agriculture, Forestry and Food Sciences (04.06.2024)

Assessment and analysis for the award of the ASIIN seal:

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

The Technical Committee 08 – Agriculture, Forestry and Food Sciences recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Forestry	With requirements for one year	30.09.2029		
Ba Agricultural Engineering	With requirements for one year	30.09.2029		
Ma Plant Pest and Disease	With requirements for one year	30.09.2029		
Ma Environmental Management	With requirements for one year	30.09.2029		

Requirements

For all programmes

A 1. (ASIIN 1.3, 4.1) Make the integration of climate change content and up to date literature visible in the module descriptions.

For the Master's degree programmes

A 2. (ASIIN 3.1) Expand the academic team by appointing a professor specializing in data handling.

For Ma Plant Pest and Disease

A 3. (ASIIN 3.3) Implement comprehensive safety instructions and measures within laboratory protocols and procedures.

For Ma Environmental Management

A 4. (ASIIN 1.1, 1.3) Integrate Life Cycle Assessment methodologies and principles into relevant courses and academic materials.

For Ba Forestry

A 5. (ASIIN 3.1, 3.3) Develop a comprehensive development plan outlining strategies to enhance the situation in soil science, focusing on improvements to staffing, laboratory facilities, and equipment.

Recommendations

For all programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to offer more opportunities for students to improve their soft skills.

E 2. (ASIIN 1.3) It is recommended to offer more courses in English.

E 3. (ASIIN 1.3) It is recommended to enable and motivate students more to go abroad (e.g. by offering more scholarships, providing information about scholarships, etc.).

E 4. (ASIIN 3.1) It is recommended to create a comprehensive staff development plan that encompasses both general areas of improvement and specifically addresses innovative subjects.

E 5. (ASIIN 3.3) It is recommended to improve the quality and quantity of the equipment.

E 6. (ASIIN 3.3) It is recommended to establish an integrated laboratory.

E 7. (ASIIN 5) It is recommended to establish advisory boards with external stakeholders on faculty level.

For the Master's degree programmes

E 8. (ASIIN 1.3) It is recommended to explore the possibility of introducing a second path, allowing students to study through coursework.

H Decision of the Accreditation Commission (28.06.2024)

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

The Accreditation Commission discusses the accreditation procedure and decides to follow the assessment of the expert panel and Technical Committee.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Forestry	With requirements for one year	30.09.2029		
Ba Agricultural Engineering	With requirements for one year	30.09.2029		
Ma Plant Pest and Disease	With requirements for one year	30.09.2029		
Ma Environmental Management	With requirements for one year	30.09.2029		

Requirements

For all programmes

A 1. (ASIIN 1.3, 4.1) Make the integration of climate change content and up to date literature visible in the module descriptions.

For the Master's degree programmes

A 2. (ASIIN 3.1) Expand the academic team by appointing a professor specializing in data handling.

For Ma Plant Pest and Disease

A 3. (ASIIN 3.3) Implement comprehensive safety instructions and measures within laboratory protocols and procedures.

For Ma Environmental Management

A 4. (ASIIN 1.1, 1.3) Integrate Life Cycle Assessment methodologies and principles into relevant courses and academic materials.

For Ba Forestry

A 5. (ASIIN 3.1, 3.3) Develop a comprehensive development plan outlining strategies and solutions to enhance the situation in soil science, focusing on improvements to staffing, laboratory facilities, and equipment.

Recommendations

For all programmes

E 1. (ASIIN 1.1, 1.3) It is recommended to offer more opportunities for students to improve their soft skills.

E 2. (ASIIN 1.3) It is recommended to offer more courses in English.

E 3. (ASIIN 1.3) It is recommended to enable and motivate students more to go abroad (e.g. by offering more scholarships, providing information about scholarships, etc.).

E 4. (ASIIN 3.1) It is recommended to create a comprehensive staff development plan that encompasses both general areas of improvement and specifically addresses innovative subjects.

E 5. (ASIIN 3.3) It is recommended to improve the quality and quantity of the equipment.

E 6. (ASIIN 3.3) It is recommended to establish an integrated laboratory.

E 7. (ASIIN 5) It is recommended to establish advisory boards with external stakeholders on faculty level.

For the Master's degree programmes

E 8. (ASIIN 1.3) It is recommended to explore the possibility of introducing a second path, allowing students to study through coursework.

I Fulfilment of Requirements (27.06.2025)

Analysis of the Experts and the Technical Committee (18.06.2025)

Requirements

For all programmes

A 1. (ASIIN 4.1) The module handbooks require revision in accordance with the indications outlined in the evaluation report.

Initial Treatment	
experts	fulfilled Vote: per majority Justification: The experts accept the reading lists as the mix of older and younger textbooks is deemed adequate. However, especially for the veterinary programme, it is recommended to focus more on modern literature.
TC 08	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

A 2. (ASIIN 4.2) Include in the Diploma Supplement a relative grade or statistical information on the distribution of the final grade in the cohort of students.

Initial Treatment	
experts	Fulfilled Vote: per majority Justification: The university has updated the Diploma Supplement with a relative grade or statistical information on the distribution of the final grade in the cohort of student for the programmes.
TC 08	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

A 3. (ASIIN 3.3, 5) An Animal Ethics committee on university level must approve all research that involves live animals.

Initial Treatment	
experts	Fulfilled Vote: per majority Justification: From the documentation of the university, the experts understand that an ethics committee at the university level under the direct supervision of the Hasanuddin University Veterinary Hospital. However, it does not fully become clear how this comes to effect for all the programmes and how research projects involving living animals are submitted for approval prior to their start. Nevertheless, the majority of experts deems this requirement to be sufficiently addressed and consider it fulfilled.
TC 08	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

For Ba Biology

A 4. (ASIIN 1.1, 1.3, 3.3) Training in basic molecular biology needs to be included and supported by appropriate equipment.

Initial Treatment	
experts	Fulfilled Vote: unanimous Justification: The experts acknowledge the improvements made regarding the equipment for basic molecular biology training, although they deem the equipment to be only limited and very basic nevertheless. Still, they consider the requirement to be fulfilled.
TC 08	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

For Ma Animal Science and Technology

A 5. (ASIIN 3.3, ASIIN 5) It is has to be ensured that animals are kept in accordance with the five freedoms of welfare. A five-year strategy shall be presented to demonstrate

how animal husbandry practices will be improved to be fully in line with the concept of the five freedoms.

Initial Treatment	
experts	Fulfilled Vote: unanimous Justification: The proposed strategy addresses the key issues in animal welfare and can lead to substantial improvements. Students can benefit from learning animal husbandry under the 5-freedoms-principles.
TC 08	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

For Ba Biology, Ba Marine Science and Ma Fishery Science

A 6. (ASIIN 2) It is has to be ensured that basic and applied microscopic methodologies, including the correct preparation of illustrations and figures (e.g. scale bars), are applied in a standardized form by the students in their reports and thesis.

Initial Treatment	
experts	Fulfilled Vote: unanimous Justification: The SOPs show that the requested methodologies are applied in the programmes, among others for preparing images and illustrations. Several examples of theses showing identified and measured macrozoobenthos along with their scales.
TC 08	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.
TC 10	Fulfilled Vote: unanimous Justification: The TC follows the recommendation of the experts.

Decision of the Accreditation Commission (27.06.2025)

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**
Ba Biology	All requirements fulfilled	30.09.2029

Degree Programme	**ASIIN Seal**	**Maximum duration of accreditation**
Ba Marine Science	All requirements fulfilled	30.09.2029
Ba Veterinary Science Leading to Professional Veterinary Medicine	All requirements fulfilled	30.09.2029
Ma Animal Science and Technology	All requirements fulfilled	30.09.2029
Ma Fishery Science	All requirements fulfilled	30.09.2029

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Forestry:

Learning Outcomes (LOs)			PLOs			
Realm	Code	Intended Learning Outcomes (ILOs)	Manager	Researcher	Facilitator	Eco-technopreneur
Attitude	A1 (1)	Internalize professional ethics of foresters, including integrity and responsibility, care for the environment, and democratic leadership attitudes.	✓	✓	✓	✓
Knowledge	K1 (3)	Demonstrate the basic concepts of forest management, forest exploitation, and forest utilization	✓	✓	✓	✓
	K2 (4)	Demonstrate the principles of community-based forest management that support sustainable development		✓	✓	
	K3 (5)	Have the basic ability to develop innovation in forest use	✓	✓		
General Skill	GSI (2)	Have lifelong learning skills in the form of logical and critical thinking skills, communicate effectively, work in interdisciplinary teams, adapt and contribute to society, and operate information technology in the forestry sector	✓	✓	✓	✓
	SS1 (6)	Practice forest resource inventory and mapping techniques, as well as develop forest management plans	✓	✓		

Special Skill	SS2 (7)	Demonstrate silvicultural systems and techniques in natural forests, plantation forests, and community-based forests		✓	✓	
	SS3 (8)	Manage the activities of forest village community empowerment	✓	✓	✓	✓
	SS4 (9)	Prepare business plan in the field of forestry and environmental services	✓			✓

The following **curriculum** is presented:

1. Compulsory Courses

NO	COURSE CODE	COURSE NAME	CREDITS	SEMESTER	CUMPOLSORY/ ELECTIVE
		SEMESTER I			
1	18Y01110102	Religious Education	2	1	C
2	18Y01111102	Civic Education	2	1	C
3	18Y01110702	Maritime Socio-Cultural Insight	2	1	C
4	18Y01111002	English Language	2	1	C
5	18Y02110103	Basic Mathematic	3	1	C
6	18Y02110703	Basic Chemistry	3	1	C
7	20M01110502	Introduction of Forestry Science	2	1	C
8	20M01110202	Forest Climatology	2	1	C
9	18Y01111202	Pancasila Education	2	1	C
		TOTAL CREDITS SEMESTER I	**20**		
		SEMESTER II			
10	18Y01110802	Science and Technology Insights	2	2	C
11	18Y01110902	Indonesian Language	2	2	C
12	18Y02110403	Basic Physics	3	2	C
13	18Y02111103	Basic Biology	3	2	C
14	20M01110303	Basic Ecology	3	2	C
15	20M01110402	Statistics	2	2	C
16	20M01110103	Geology and Forest Soil Science	3	2	C
17	20M01110602	Conservation Fundamentals	2	2	C
		TOTAL CREDITS SEMESTER II	**20**		
		SEMESTER III			
18	20M01120103	Forestry Spatial Information System	3	3	C
19	20M01120202	Forest Resources & Environment Economics	2	3	C
20	20M01120303	Forestry Entrepreneurship	3	3	C
21	20M01120403	Silviculture (Silvika)	3	3	C
22	20M01120503	Forest Protection and Security	3	3	C
23	20M01120603	Dendrology	3	3	C
24	20M02120702	Wood Science	2	3	C
25	20M01120802	Measuring Wood Science	2	3	C
26	20M01120902	Forest Work Science	2	3	C
		TOTAL CREDITS SEMESTER III	**23**		
		SEMESTER IV			
27	20M01121003	Watershed Management	3	4	C
28	20M01121103	Geographic Information System	3	4	C
29	20M01121202	Non-Timber Forest Products	2	4	C
30	20M01121303	Silviculture	3	4	C
31	20M01121503	Forest Ecology	3	4	C
32	20M01121603	Engineering and Forest Area Clearing	3	4	C
33	20M02121702	Solid Wood Processing and Working Technology	2	4	C
34	20M01121803	Forest Inventory	3	4	C
		TOTAL CREDITS SEMESTER IV	**22**		
		SEMESTER V			
35	20M01130103	Community Forestry	3	5	C
36	20M01130203	Soil and Water Conservation	3	5	C

NO	COURSE CODE	COURSE NAME	CREDITS	SEMESTER	CUMPOLSORY/ ELECTIVE
37	20M01130303	Forest Planning	3	5	C
38	20M01130502	Environmental Management	2	5	C
39	20M01130603	Agroforestry	3	5	C
40	20M01130703	Forest Harvesting	3	5	C
41	20M01130402	Seed and Nursery Technology	3	5	C
42		Elective Courses 1	2	5 & 6	E
43		Elective Courses 2	2	5 & 6	E
TOTAL CREDITS SEMESTER V			24		
SEMESTER VI					
44	20M01131003	Research Methodology	3	6	C
45	20M01131102	Forestry Extension	2	6	C
46	20M01131202	Forestry and Environmental Policy	2	6	C
47	20M01131302	Forest Management	2	6	C
48	20M01131401	Integrated Practice Management	1	6	C
49	20M02131502	Industrial Management	2	6	C
50	20M01131603	Forest Village Empowerment	3	6	C
51		Elective Courses 3	2	6	E
52		Elective Courses 4	2	6	E
53	20M01131702	Cocurricular	2	6	C
TOTAL CREDITS SEMESTER VI			21		
SEMSETER VII-VIII					
54	20M01140101	Comprehensive Examination	1	7 & 8	C
55	20M01140204	Field Work Practice 1/ General Practice	4	7 & 8	C
56	099U0034	Student Study Service (KKN)	4	7 & 8	C
57	20M01140304	Field Work Practice 2/Internship		7 & 8	C
58	20M01140401	Final Seminar	1	7 & 8	C
59	20M01140504	Final Project (Thesis)	4	7 & 8	C
TOTAL CREDITS SEMESTER VII-VIII			14		
TOTAL SEMESTER CREDITS			144		

2. Elective Courses

NO	COURSE CODE	COURSE NAME	CREDITS
Topics of Watershed Management			
1	20M01131802	Watershed Quality Assessment	2
2	20M01131902	Forest Hydrology	2
3	20M01131002	Forest Influence	2
Topics of Forestry Planning and Information Systems			
4	20M01131102	Regression Analysis	2
5	20M01131202	Experimental Design	2
6	20M01131302	Operations Research	2
7	20M01131402	Forestry Planning for Regional Development	2
8	20M01131502	Inderaja App for Forest and Land Resource Analysis	2
9	20M01131602	Inventory and Monitoring of Forest Resources and Environment	2
Topic of Harvesting Forest Products			
10	20M01131702	Harvesting Cost Analysis	2
11	20M01131802	Forest Harvesting Machines	2
12	20M01131902	Low Impact Forest Harvesting	2
13	20M01132002	Community Forest Harvesting Management	2
14	20M01132102	Forest Business	2
Topics of Protection and Forest Insects			

NO	COURSE CODE	COURSE NAME	CREDITS
15	20M01132202	Forest Insect Science	2
16	20M01132302	Forest Fire Control	2
17	20M01132402	Forest Pests and Diseases	2
18	20M01132502	Natural Silk Management	2
19	20M01132602	Honey Bee Management	2
Topics of Silviculture and Tree Physiology			
20	20M01132702	Plantation Forest Silviculture	2
21	20M01132802	Urban Forestry	2
Topics of Forest Resources Conservation and Ecotourism			
22	20M01132902	Vegetation Ecology Methodology	2
23	20M01133002	Wildlife Management	2
24	20M01133102	Ecotourism	2
25	20M01133202	Conservation Area Management	2
26	20M01133302	Biological Conservation	2
27	20M01133402	Aquatic Ecology	2
28	20M01133502	Archipelago Biogeography	2
29	20M01133602	Fundamentals of Natural Resources Management	2
Topics of Forestry Policy and Entrepreneurship			
30	20M01133702	Marketing Management	2
31	20M01133802	Forestry Development Project Analysis	2
32	20M01133902	Social Research Methodology	2
33	20M01134002	Aggregative Economy	2
34	20M01134102	Forestry Accounting	2
35	20M01134202	Forestry And Environmental Law	2
36	20M01134302	Forestry Sociology and Anthropology	2

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor degree programme Agricultural Engineering:

Learning Outcomes (LOs)			PLOs			
Realm	Code	Intended Learning Outcomes (ILOs)	Planner and Engineer	Manager	Research Assistant	Entrepreneur
Attitude	A1 (1)	Apply the values of maritime spirits in agricultural engineering profession	✓	✓	✓	✓
	A2 (2)	Demonstrate capacity for life-long learning in agricultural engineering profession	✓	✓	✓	✓
Knowledge	K1 (3)	Apply knowledge of mathematics, sciences, and engineering principles in agricultural fields;	✓	✓	✓	✓
	K2 (4)	Use quantitative analysis, information technology and critical thinking in agricultural engineering profession;	✓	✓	✓	✓
Skills	S1 (5)	Use techniques, skills, and modern tools necessary for agricultural engineering practices;	✓	✓	✓	✓
	S2 (6)	Design simple equipment, components, or processes needed in agricultural engineering operations	✓	✓	✓	
Competence	C1 (7)	Manage and utilize agricultural resources effectively, efficiently, and sustainably	✓			
	C2 (8)	Demonstrate capacity in operating agricultural engineering related business either as producer or service provider;				✓
	C3 (9)	Analyze the impact of engineering solutions to the environment and society using a multidisciplinary approach;			✓	
	C4 (10)	Explore and develop effective solutions related to agricultural engineering issues.		✓		

The following **curriculum** is presented:

Semester	Code	Course Name	Credit	ECTS	Type
I	18Y0111...02	Religion Study	2	3.4	Compulsory
	18Y01111102	Civic Education	2	3.4	Compulsory
	18Y01110702	Maritime Culture Study	2	3.4	Compulsory
	18Y01111002	English	2	3.4	Compulsory
	18Y02110103	Elementary Mathematics	3	5.1	Compulsory
	18Y02110703	Elementary Chemistry	3	5.1	Compulsory
	19G04110102	Introduction to Agricultural Technology	2	3.4	Compulsory
	19G04110201	Scientific Writing for Engineers	1	1.7	Compulsory
	19G04110302	Engineering Drawing	2	3.4	Compulsory
	19G04110401	Engineering Drawing Practicum	1	1.7	Compulsory
	TOTAL		**20**	**34**	

Semester	Code	Course Name	Credit	ECTS	Type
II	18Y01111202	Pancasila Education	2	3.4	Compulsory
	18Y01110902	Indonesia Language	2	3.4	Compulsory
	18Y02110403	Physics	3	5.1	Compulsory
	18Y02111103	Biology	3	5.1	Compulsory
	19G04110502	English for Engineers	2	3.4	Compulsory
	19G04110602	Engineering Mathematics I	2	3.4	Compulsory
	19G04110701	Engineering Mathematics I Practicum	1	1.7	Compulsory
	19G04110802	Applied Statistics	2	3.4	Compulsory
	19G04110901	Engineering Professional Ethics	1	1.7	Compulsory
	19G04111002	Engineering Properties of Materials	2	3.4	Compulsory
	TOTAL		**20**	**34**	

Semester	Code	Course Name	Credit	ECTS	Type
III	19G01110703	Introduction to Agronomy	3	5.1	Compulsory
	19G01110203	Fundamental of Soil Science	3	5.1	Compulsory
	19G04120102	Engineering Mathematics II	2	3.4	Compulsory
	19G04120202	Fluid Mechanics	2	3.4	Compulsory
	19G04120302	Thermodynamics	2	3.4	Compulsory
	19G04120402	Introduction to Climatology	2	3.4	Compulsory
	19G04120502	Surveying	2	3.4	Compulsory
	19G04120602	Heat Transfer	2	3.4	Compulsory
	19G04120702	Instrumentation	2	3.4	Compulsory
	19G04120801	Engineering Mathematics Tutorial II	1	1.7	Compulsory
	19G04120901	Fluid Mechanics Practicum	1	1.7	Compulsory
	19G04121001	Surveying Practicum	1	1.7	Compulsory
	19G04121101	Instrumentation Practicum	1	1.7	Compulsory
	TOTAL		**24**	**40.8**	

Semester	Code	Course Name	Credit	ECTS	Type
IV	19G04121202	Research Methodology	2	3.4	Compulsory
	19G04121302	Engineering Mechanics	2	3.4	Compulsory
	19G04121402	Mechanical Workshop	2	3.4	Compulsory
	19G04121502	Agricultural Product Processing Technology I	2	3.4	Compulsory
	19G04121602	Farm Electrification	2	3.4	Compulsory
	19G04121702	Engineering Design	2	3.4	Compulsory
	19G04121802	Engineering Hydrology	2	3.4	Compulsory
	19G04121902	Farm Power & Machinery	2	3.4	Compulsory
	19G04122002	Agricultural Product Processing Technology II	2	3.4	Compulsory
	19G04122101	Mechanical Workshop Practicum	1	1.7	Compulsory
	19G04122201	Heat Transfer & Thermodynamics Practicum	1	1.7	Compulsory
	19G04122301	Engineering Hydrology Practicum	1	1.7	Compulsory
	19G04122401	Agricultural Product Processing Technology and Engineering Properties of Materials	1	1.7	Compulsory
	19G04122501	Farm Electrification Practicum	1	1.7	Compulsory

Semester	Code	Course Name	Credit	ECTS	Type
	19G04122601	Engineering Mechanics Practicum	1	1.7	Compulsory
	TOTAL		**24**	**40.8**	

Semester	Code	Course Name	Credit	ECTS	Type
V	19G04130102	Renewable Energy	2	3.4	Compulsory
	19G04130202	Farm Machinery & Equip	2	3.4	Compulsory
	19G04130302	Computer Programming	2	3.4	Compulsory
	19G04130402	Irrigation And Drainage Eng	2	3.4	Compulsory
	19G04130501	Renewable Energy Practicum	1	1.7	Compulsory
	19G04130601	Farm Machinery & Equip Practicum	1	1.7	Compulsory
	19G04130701	Food Process Engineering Practicum	1	1.7	Compulsory
	19G04130801	Computer Programming Practicum	1	1.7	Compulsory
	19G04130901	Irrigation And Drainage Eng Practicum	1	1.7	Compulsory
		Electives	10	17	
	19G04131002	- Modelling and Simulation	2	3.4	Elective
	19G04131102	-Information System	2	3.4	Elective
	19G04131202	-Artificial Intelligence	2	3.4	Elective
	19G04131302	-Agro-Informatics	2	3.4	Elective
	19G04131402	-Quality Control Statistics	2	3.4	Elective
	19G04131502	-Internship	2	3.4	Elective
	19G04131602	-Research Design	2	3.4	Elective
	TOTAL		**23**	**39.1**	

Semester	Code	Course Name	Credit	ECTS	Type
VI	19G04131702	Soil & Water Conservation Engineering	2	3.4	Compulsory
	19G04131802	Automatic Control System	2	3.4	Compulsory
	19G04131903	Operation Research	3	5.1	Compulsory
	19G04132002	Engineering Economy	2	3.4	Compulsory
	19G04132102	Entrepreneurship	2	3.4	Compulsory
	19G04132202	Numerical Analysis	2	3.4	Compulsory
	19G04132302	Farm Structure & Environment	2	3.4	Compulsory
	19G04132401	Soil & Water Conservation Engineering Practicum	1	1.7	Compulsory

Semester	Code	Course Name	Credit	ECTS	Type
	19G04132501	Automatic Control System Practicum	1	1.7	Compulsory
	19G04132601	Entrepreneurship Practicum	1	1.7	Compulsory
		Electives	4	6.8	
	19G04132702	-System Analysis	1	1.7	Elective
	19G04132802	-Management of Farm Machinery and Equipment	2	3.4	Elective
	19G04132902	-Management of Water Resources	2	3.4	Elective
	19G04133002	-Management of Agroindustry	2	3.4	Elective
	19G04133102	-Ecology of Industry	2	3.4	Elective
	19G04133202	-Design and Testing	2	3.4	Elective
	19G04133302	-Food Process Engineering II	2	3.4	Elective
	19G04133402	-Agricultural Product Processing Engineering II	2	3.4	Elective
	TOTAL		**22**	**34**	

Semester	Code	Course Name	Credit	ECTS	Type
VII	19G04140104	Student Community Service	4	6.8	Compulsory
	19G04140202	Extra-Curricular	2	3.4	Compulsory
	19G04140301	Research Proposal Seminar	1	1.7	Compulsory
	19G04140401	Research Result Seminar	1	1.7	Compulsory
	19G04140506	Final Project Report & Exam	6	10.2	Compulsory
	TOTAL		**14**	**23.8**	

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Master degree programme Plant Pest and Disease:

Realm	Code	Intended Learning Outcomes (ILOs)	Graduates Profiles				
			Researcher	Facilitator	Academician	Managers	Experts
Attitude	A	Internalize the values of Pancasila, professionalism, and academic ethics in the spiritual and social life.	✓	✓	✓	✓	✓
Knowledge	K-1	Recognize and analyze the biological and ecological factors that support and inhibit the development of plant pests and diseases.	✓	✓	✓		✓
	K-2	Construct ideas and scientific arguments related to various problems of plant pests and diseases.	✓	✓	✓	✓	✓
Skills	S-1	Analyze techniques for the diagnosis and forecasting of plant pests and diseases as well as the identification of beneficial insects and microbes.	✓		✓		✓
	S-2	Propagate biological control agents for plant pests and diseases management	✓		✓	✓	✓
	S-3	Design and construct healthy plant and seed production systems	✓	✓	✓	✓	✓
	S-4	Disseminate scientific findings and control technologies in plant pests and diseases through reputable scientific publications and other scientific forums.	✓		✓		✓
Competences	C-1	Advancing knowledge related to plant pests and diseases through research using local resources to develop innovative and applicable technologies.	✓	✓	✓	✓	✓
	C-2	Develop integrated control technology based on understanding biology and ecology of plant pests and diseases to support sustainable agriculture.	✓		✓		✓
	C-3	Contribute to policymaking of plant pests and diseases and their management to improve agricultural production.	✓	✓	✓	✓	✓

The following **curriculum** is presented:

Code	Courses	CP	ECTS	Status	Semester
18P03210102	Philosophy of Science	2	3.17	Compulsory	I
18P03210202	Ecological Theory (General & Human)	2	3.17	Compulsory	I
18P03210302	Global & National Environmental Politics	2	3.17	Compulsory	I
18P03210403	Environmental Impact Assessment	3	4.76	Compulsory	I
18P03210503	Environmental Management	3	4.76	Election	I
18P03210603	Conservation of Natural Resources	3	4.76	Election	I
18P03210703	Environmental Technology	3	4.76	Election	I
18P03210803	Environmental Sociology and Anthropology	3	4.76	Election	I
18P03210902	Economics of Natural Resources and Environment	2	3.17	Election	I
18P03211002	Toxicology and Environmental Pollution	2	3.17	Election	I
18P03211102	Remote Sensing and Geography Information System	2	3.17	Election	I
18P03211202	Environmental Quality Management	2	3.17	Election	I
18P03211302	Environmental Pollution Control	2	3.17	Election	I
18P03211402	Environmental Health	2	3.17	Election	I
18P03211502	Maritime Anthropology	2	3.17	Election	I
18P03211602	Land Use Planning	2	3.17	Election	I
18P03211702	Watershed Management	2	3.17	Election	I
18P03211802	Environmental Modeling	2	3.17	Election	I
18P03211902	Sustainable Development Insights	2	3.17	Election	I
18P03212002	Maritime Sociology	2	3.17	Election	I
18P03212103	Research Methods and Scientific Publications	3	4.76	Compulsory	II
18P03212202	Research Proposal Seminar	2	3.17	Compulsory	II
18P03212305	International Publication	5	7.93	Compulsory	III
18P03212404	Research Results Seminar	4	6.35	Compulsory	III
18P03212509	Thesis	9	14.28	Compulsory	III

According to the Self-Assessment Report the following **learning outcomes (intended qualifications profile)** shall be achieved by the Master degree programme Environmental Management:

Realm	Code	ILOs	Manager	Consultant	Researcher	Lecturer
Attitude	A	Capable in Internalize and actualize values and norms (religiosity, humanity, nationalism, cultural diversity, sensitivity and concern, discipline, independence, fighting spirit, academic ethics, entrepreneurship, and responsibility) which should be reflected in the spiritual and social life of the nation throughout the study process, and through student work experience, research and/or community service related to their studies.	√	√	√	√
Knowledge (K)	K1	Capable in Develop logical, critical, systematic and creative thinking through scientific research in the field of environmental management, formulate scientific conceptions and the results of their studies based on scientific principles, procedures and ethics in the form of theses published in accredited scientific journals.	√	√	√	√
	K2	Capable in perform academic validation or studies in the field of environmental management in order to solve environmental problems in society or industry.			√	√
	K3	Capable to master the theory of study program identification skills in the Wallacea Ecosystem Region: Sulawesi, NTT, Maluku, and Papua	√	√	√	√
Competencies (S)	S1	Capable in develop logical, critical, systematic, and creative thinking through scientific research in the field of environmental management, formulate scientific conceptions and the results of their studies based on scientific principles, procedures, and ethics in the form of theses published in accredited scientific journals.	√	√	√	√
Skill	S2	Capable in carry out academic validation or studies in the field of environmental management in solving environmental problems in society or industry.			√	√
	S3	Capable in compile ideas, thoughts, and scientific arguments in a responsible and based on academic ethics and communicate through the media to the academic community and the wider community.	√	√	√	√
	S4	Capable in identify scientific fields that are the object of his research and position them into a research map developed through an inter and or multidisciplinary approach.	√	√	√	√
	S5	Capable in make decisions in the context of solving problems in the development of science and technology by paying attention to and applying humanities values based on studies, analysis or experiments on information and data.	√	√		
	S6	Capable in manage, develop and maintain networks with colleagues, peers within institutions and the wider research community.	√		√	√
	S7	Capable in increase the capacity of learning independently.			√	√
	S8	Capable in documented, store, secure, and rediscover research data in order to ensure validity and prevent plagiarism.			√	√
	C1	Capable in develop science and technology and its application in the field of environmental management.				√
	C2	Capable in solve scientific and technological problems in the field of environmental management through inter and or multidisciplinary approaches.	√	√	√	√
	C3	Capable in manage research and knowledge in the field of environmental management that is beneficial to society and science and is Capable in gain national and international recognition			√	√

The following **curriculum** is presented:

Semester	Code	Courses	Subject Matters							CP	ECTS
			Core Science	Supporting Science				Univ. Characteristics			
				Environmental Management	Conservation of Natural Resources	Environment Technology	Sociology and Anthropology				
I	18P03210102	Philosophy of Science	■							2	3.4
	18P03210202	Theory of Ecology (General & Human)	■							2	3.4
	18P03210302	Global & National Environmental Politics	■							2	3.4
	18P03210403	Environmental Impact Assessment (EIA)	■							3	5.1
	18P03210503	Environmental Management		■						3	5.1
	18P03210603	Conservation of Natural Resources			■					3	5.1
	18P03210703	Environmental Technology				■				3	5.1
	18P03210803	Environmental Sociology and Anthropology					■			3	5.1
	18P03210902	Economics of Natural Resources and the Environment		■	■	■	■			2	3.4
	18P03211002	Toxicology and Environmental Pollution		■	■	■	■			2	3.4
	18P03211102	Remote Sensing and Geography Information System		■	■	■	■			2	3.4
	18P03211202	Environmental Quality Management		■	■	■	■			2	3.4

	18P03211302	Environmental Pollution Control							2	3.4
	18P03211402	Environmental Health							2	3.4
	18P03211502	Maritime Anthropology							2	3.4
	18P03211602	Land Use Planning							2	3.4
	18P03211702	Watershed Management							2	3.4
	18P03211802	Environmental Modeling							2	3.4
	18P03211902	Sustainable Development Insights							2	3.4
	18P03212002	Maritime Sociology							2	3.4
II	18P03212103	Research Methods and Scientific Publications							3	5.1
	18P03212202	Research Proposal Seminar							2	3.4
	18P03212305	International Publication							5	8.5
III	18P03212404	Research Results Seminar							4	6.8
	18P03212509	Thesis							9	15.3