ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes

Chemistry
Pharmacy

Master's Degree Programme

Pharmaceutical Science

Provided by
Universitas Hasanuddin – Makassar, Indonesia

Version: 28 June 2024

Table of Content

A About the Accreditation Process 3

B Characteristics of the Degree Program 4

C Accreditation Report for the ASIIN Seal 8

1. The Degree Program: Concept, content & implementation 8

2. Exams: System, Concept and Organization 27

3. Resources 31

4. Transparency and documentation 40

5. Quality management: quality assessment and development 43

D Additional Documents 46

E Comment of the Higher Education Institution (29.04.2024) 47

F Summary: Expert recommendations (27.05.2024) 63

G Comment of the Technical Committee 09 – Chemistry, Pharmacy (03.06.2024) 65

H Decision of the Accreditation Commission (28.06.2024) 68

Appendix: Program Intended Learning Outcomes and Curricula 71

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]
Program Studi Sarjana Kimia	Bachelor in Chemistry	ASIIN	The Independent Accreditation Institution for Natural Sciences and Formal Sciences (LAMSAMA). Grade excellent, valid until July 2028.	09
Program Studi Sarjana Farmasi	Bachelor in Pharmacy	ASIIN	Indonesian Accreditation Agency for Higher Education in Health Grade A, valid until March 2027.	09
Program Studi Magister Ilmu Farmasi	Master in Pharmaceutical Science	ASIIN	Indonesian Accreditation Agency for Higher Education in Health Grade A, valid until March 2027.	09
Date of the contract: 30.05.2023 **Submission of the final version of the Self-Assessment Report:** 13.10.2023 **Date of the audit:** 21.02. – 22.02.2024 **At:** Universitas Hasanuddin, Makassar				
Expert panel: Prof. Dr. Dr. h.c. Holger Stark, University Düsseldorf Prof. Dr. Is Fatimah, Universitas Islam Indonesia Prof. Dr. Elida Zairina, Universitas Airlangga				

[1] ASIIN Seal for degree programs
[2] TC: Technical Committee for the following subject areas: TC 09 – Chemistry

Ms. Natasha Era Radita, Taiho Pharma Asia Pacific, Jakarta Miss Rifda Tarimi Octavia, Universitas Airlangga, student	
Representative of the ASIIN headquarter: Dr. Emeline Jerez	
Responsible decision-making committee: Accreditation Commission for Degree Programs	
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2023 Subject-Specific-Criteria of the Technical Committee 09 – Chemistry as of 29.03.2019	

B Characteristics of the Degree Program

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 in Chemistry	S.Si (Sarjana Sains/Bachelor of Science)	-	Level 6	Full time	No	8 semesters	144 credits equivalent to 244.8 ECTS	August 1963
Bachelor in Pharmacy	S.Si (Sarjana Sains/Bachelor of Science)	-	Level 6	Full time	No	8 semesters	144 credits equivalent to 244.8 ECTS	August 1963
Master in Pharmaceutical Science	M.Si (Magister Sains/Master of Science)	-	Level 7	Full time	No	4 semesters	36-42 credits equivalent to 61.2-71.4 ECTS	September 2001

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

The ASIIN experts acknowledge and consider the contextual framework within which the Bachelor's and Master's programs under review are offered:

Universitas Hasanuddin (UNHAS) is a public higher education institution located in Makassar, Indonesia. It was officially established in 1956.

Accounting for over 44,000 students, the university has 17 faculties covering various fields in science, technology, engineering, mathematics and medicine, as well as the arts and social sciences. The educational offer ranges from vocational and undergraduate to postgraduate programs, including specialist, professional, master's, and doctoral study programs

UNHAS' vision is "to become a leading centre of excellence in human development, science, technology, art, and culture based on the Indonesian Maritime Continent." In the 2024 QS World Universities Ranking, the university is ranked 12th in Indonesia and in the range of 1001-1200th in the world.

The Faculty of Mathematics and Natural Sciences

Fakultas Matematika dan Ilmu Pengetahuan Alam was established in 1963 and consists of the departments of Mathematics, Physics, Chemistry, Biology, Geophysics and Statistics. Currently, the Faculty offers undergraduate, master's, and doctoral-level study programs, and its vision is "to become a center of excellence in the development of basic and applied science based on the Indonesian Maritime Continent (BMI) at the national level and recognized at the international level by 2030"

The Faculty has presented the following mission statement on its website.

1. "Carrying out professional academic activities to produce graduates who are moral, have a global perspective and care about people's lives and have superior academic abilities and are competitive in the national and international scope;
2. Contribute to the development of scientific, technological, social and cultural (IPTEKSBUD) science by supporting specific BMI-based research;
3. Disseminate science and technology and new discoveries that are useful for the benefit of BMI through partnerships with other institutions."

As part of this cluster, the Faculty of Mathematics and Natural Sciences pursues ASIIN accreditation for the ***Bachelor in Chemistry*** study program**,** which is introduced in the self-assessment report with the following objectives and graduate's profile:

Program Educational Objectives:

1. "Producing graduates as intellectuals who have integrity, professional, productive and have a commitment to learning all the time so they are able to adapt and contribute optimally in the context of sustainable development and can compete in the global job market
2. Increase the productivity of graduates and the number of prospective students who choose the Chemistry Study Programme UNHAS as the first choice
3. Be able to act as a centre for study, development, and continuous utilization of maritime continent natural resources
4. Developing partnerships with internal and external sectors in order to provide the widest possible contribution and benefits to society
5. Improving the quality of infrastructure, facilities and technology as well as creating a healthy and conducive academic atmosphere that is beneficial for the academic community to support the implementation of the study programme mission
6. Create and develop healthy and strong institutions that are supported by a scientific culture and a culture of quality."

Graduate's profile

(1) "Junior professional chemist,
(2) Junior researcher,
(3) Quality controller,
(4) Academics/educator."

The Faculty of Pharmacy

Fakultas Farmasi's roots can be traced back to the Department of Pharmacy, which was initially established as part of the Faculty of Natural Sciences in 1963. Following a period of rapid expansion and development, it was formally inaugurated as an independent Faculty in 2007. The educational offer includes a Bachelor in Pharmacy, Pharmacist Professional, Master in Pharmaceutical Science and a Doctoral program in Pharmacy. The Faculty's vision is to become "a center of excellence in human development, science and technology and culture in the pharmaceutical sector based on the Indonesian maritime continent."

The Faculty has presented its mission statement on its website.

1. "Providing facilities and infrastructure to support a representative learning process to create a conducive academic atmosphere, thereby producing proactive and innovative ethical learners;
2. Developing science and technology in the pharmaceutical sector through superior research that can produce innovative products and ideas;

3. Applying and disseminating science and technology in the field of pharmacy for the benefit and welfare of society;
4. Implement a governance system that is credible, transparent, accountable, responsible and fair."

As part of this cluster, the Faculty of Pharmacy seeks ASIIN accreditation for the ***Bachelor in Pharmacy*** and ***Master in Pharmaceutical Science*** study programs, which are introduced in the self-assessment report with the following objectives and graduate's profile:

i. Bachelor's program in Pharmacy

Program Educational Objectives:

1. "Be able to solve problems in community through implementation of the concepts and skills in pharmaceutical sciences and technology
2. Having a capability to continuously develop their knowledge and skills and be prepared for higher level of degree or training
3. Showing professional attitude, function, and creativity in their field and be adaptive to their work environment"

Graduate's profile

(1) "Pharmacy technician,
(2) Researcher,
(3) Manager,
(4) Entrepreneur"

ii. Master's program in Pharmaceutical Science

Program Educational Objectives:

1. "Provide solutions to the problems encountered by the community and the nation through their knowledge, skills and competencies
2. Contribute to the development of science and technology through research and creative ideas
3. Have the quality of long-life learners and self-motivated to continuously improve their knowledge and skills"

Graduate's profile

(1) "Researcher,
(2) Educator,
(3) Manager,
(4) Consultant"

As per the discussion held with the representatives of the Rector's Office, UNHAS's strategic priority is to attain the highest class and international level. Pursuing international accreditation aligns with the current focus on internationalisation. The expert team commends the University's efforts and resources invested in improving its national ranking position and becoming internationally recognised.

C Accreditation Report for the ASIIN Seal

1. The Degree Program: Concept, content & implementation

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

Evidence:

- Self-assessment report
- Objectives-Module-Matrices as part of the self-assessment report
- Ba Chemistry website: https://chemistry.sci.unhas.ac.id/
- Ba Pharmacy website: https://farmasi.unhas.ac.id/index.php/sarjana-s1/
- Ma Pharmaceutical Science website: https://farmasi.unhas.ac.id/index.php/magister-s2/
- Discussions during the audit

Preliminary assessment and analysis of the peers

Learning Outcomes

According to the self-assessment report, the intended learning outcomes (ILOs) of the ***Bachelor in Chemistry, Bachelor in Pharmacy*** and ***Master in Pharmaceutical Science*** study programs are developed based on each program's educational objectives and a process involving stakeholders and benchmarking against pertinent national and international standards and references. The programs' ILOs align with the Indonesian National Qualification Framework, the National Higher Education Standards, UNHAS's vision and mission and the mandate of the Faculty of Mathematics and Natural Sciences and the Faculty of Pharmacy, respectively.

Based on national regulation, the ILOs of the programs under review (see Appendix) are distinguished as aspects of Attitude (sikap), Knowledge (pengetahuan), General Skills (kemampuan umum), and Special Skills (kemampuan khusus).

For the programs, the University presents tabular mappings of linkages between modules and ILOs, as well as ILOs and ASIIN's subject-specific criteria within the provided documentation. The expert team appreciates the detailed and multi-layered description of objectives in the programs under review.

After evaluation, the overall impression is that the objectives and learning outcomes of the three programs under review are well-defined and established. The auditors confirmed that the student and program objectives for the programs are published on their respective websites.

Graduate Qualification Profiles

Graduates of the ***Bachelor in Chemistry*** study program are expected to embark on diverse career paths, ranging from roles as junior professional chemists, researchers, and quality controllers to positions in academia. **In connection to this, the experts noted that the intended competence profile complies with specific areas of the profession, specifically chemistry subjects. For example, as junior chemists/researchers and quality controllers, graduates have competence skill aspects; these are described as students should demonstrate safety skills in handling chemicals by considering their physical and chemical properties, including the specific hazards associated with their use and the ability to carry out risk assessments, demonstrate laboratory skills to carry out identification, separation, characterisation, analysis, and synthesis of chemicals in relation to inorganic, organic, and biochemical systems, and demonstrate practical skills in the operation of standard chemical instrumentation. However, the detailed description of marine chemistry is not represented. Given that, as stated in the self-assessment report, the focus of the Bachelor's program in Chemistry is on the exploration and utilisation of marine natural products, the experts recommend clearly describing the marine chemistry specialisation in the Module Handbook.**

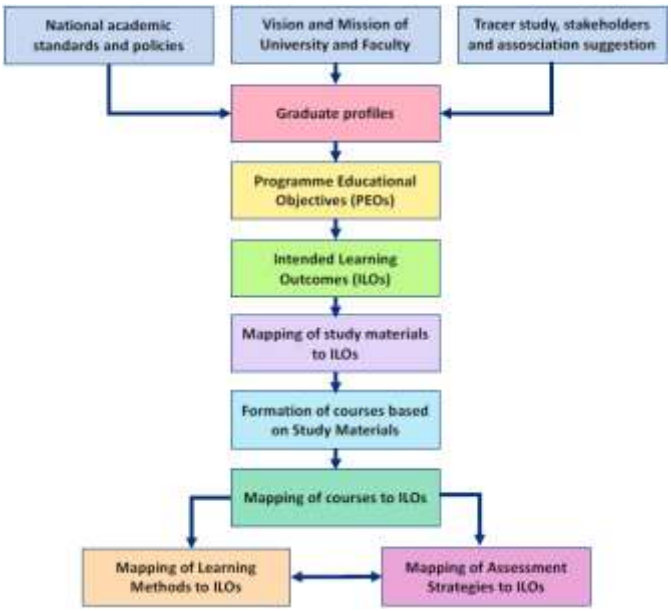
Regarding those completing the ***Bachelor in Pharmacy*** study *program,* they are anticipated to possess advanced skills relevant to pharmacy practice, enabling them to excel as pharmacy technicians, researchers, managers, or entrepreneurs. In the ***Master in Pharmaceutical Science*** program, graduates are expected to contribute with their expertise as researchers, educators, managers, or consultants within the pharmaceutical industry.

During the discussion with the expert panel, students and alumni expressed their satisfaction with the programs under review, the learning they deliver, and future job prospects.

On their part, industry representatives equally conveyed their satisfaction with graduates, highlighting the University's importance to the local community. In particular, the industry partners confirmed their eagerness to take in students and graduates from the programs under review, citing the knowledge and technical skills they bring with them.

Review of Learning Outcomes

According to the University's self-assessment report, program educational objectives, intended learning outcomes, and curricula undergo a thorough review every 4-5 years to remain aligned with advancements in science and technology as well as emerging trends. These reviews involve internal and external stakeholders, benchmarking processes and tracer studies as outlined in the figure below.



Curriculum Review Flowchart. Source: Self-assessment report, UNHAS.

Regular assessments of the achievement of the learning outcomes are also conducted each semester. In agreement with this, the program coordinators confirmed during the on-site visit that focus group discussions support curriculum evaluation and that student, alumni and employers are surveyed for review and quality assurance purposes. Program coordinators also maintain proper records of the meetings and the various consultations.

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

UNHAS has defined program objectives and intended learning outcomes (ILOs) to describe the profile and the goals of the three programs under review. The program objectives outline general purposes, while the ILOs provide specific details on the competences that students should acquire during their studies. The ILOs have been designed by considering the Indonesian National Qualification Framework, the provisions of the corresponding Indonesian professional and scientific associations and using the instrument of internal and external benchmarking.

The experts verified that ILOs align with the programs' objectives and considered them reasonable and well-founded.

Based on the feedback from students and industry representatives, the experts believe that the imparted qualification profiles satisfy the expectations of all parties involved. These profiles allow the students to obtain employment that corresponds to their qualifications once they graduate.

From the provided documentation, their exchanges during the audit, as well as the further discussion about the University's quality assurance mechanisms under Criterion 1.3 and Criterion 5 below, the experts gain the impression that appropriate, recurring review mechanisms concerning the objectives and learning outcomes of the programs under review are in place.

The experts attest that the learning outcomes of the programs correspond to levels 6 (Bachelor's programs) and 7 (Master's program) of the European Qualification Framework (EQF), respectively. The degree programs are designed in such a way that they meet the objectives set for them. The experts judge that the objectives and intended learning outcomes of the degree programs adequately reflect the intended level of academic qualification and correspond sufficiently with the respective ASIIN Subject-Specific-Criteria (SSC). Further discussion of the curricula will follow in Criterion 1.3.

Criterion 1.2 Name of the degree program

Evidence:

- Self-assessment report
- Ba Chemistry website: https://chemistry.sci.unhas.ac.id/
- Ba Pharmacy website: https://farmasi.unhas.ac.id/index.php/sarjana-s1/
- Ma Pharmaceutical Science website: https://farmasi.unhas.ac.id/index.php/magister-s2/
- Curriculum Documents, all programs under review

- Sample Diploma for each degree program
- Sample Diploma Supplement for each degree program

Preliminary assessment and analysis of the experts:

The naming of the degrees awarded follows the regulation of the Minister of Research, Technology and Higher Education.

Graduates of the ***Bachelor in Chemistry*** and ***Bachelor in Pharmacy*** study programs are conferred the title Sarjana Sains (S.Si.) or Bachelor of Science (B.Sc.). Meanwhile, graduates of the ***Master's program in Pharmaceutical Science*** are awarded the title Magister Sains (M.Si) or Master of Science (M.Sc).

The experts confirm that the English translation and the original Indonesian names of the three study programs under review are appropriate and correspond to the programs' intended aims and learning outcomes.

Criterion 1.3 Curriculum

Evidence:

- Self-assessment report
- Ba Chemistry website: https://chemistry.sci.unhas.ac.id/
- Ba Pharmacy website: https://farmasi.unhas.ac.id/index.php/sarjana-s1/
- Ma Pharmaceutical Science website: https://farmasi.unhas.ac.id/index.php/magister-s2/
- Curriculum Documents, all programs under review
- UNHAS Academic Calendar 2023/2024: https://www.unhas.ac.id/kalender-akademik/?lang=id
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The curricula, structure, and composition of the study programs under review are presented in the University's provided "Curriculum Documents", including the academic guidelines and module handbooks. As per the self-assessment report, the programs are aligned with the Indonesian Qualification Framework and National Standards for Higher Education. Moreover, the ***Bachelor in Chemistry*** study program adheres to the standards

set by the Indonesian Chemical Association, while the ***Bachelor in Pharmacy*** and ***Master in Pharmaceutical Science*** study programs comply with those of the Association of Indonesian Pharmacy Higher Education, all while addressing market demands.

i. Structure of the Programs

Both ***Bachelor's programs*** under review are full-time and comprise 144 SKS (Satuan Kredit Semester), equivalent to 244.8 ECTS. The ***Master's program*** is also full-time and involves a minimum of 36 SKS (61.2 ECTS) and a maximum of 42 SKS (71.4 ECTS).

Each semester is equivalent to 16 weeks, including 14 weeks of learning activities and 2 weeks for midterm and final exams. The odd semester starts in August and ends in December, and the even semester lasts from February to June.

The curricula of the ***Bachelor's programs*** consist of *mandatory modules* covering social and character development subject materials, *compulsory modules* covering the study of basic natural sciences and the fields of chemistry/pharmacy, and *elective courses* covering advanced studies in chemistry/pharmacy topics. Asked about the difference between mandatory and compulsory modules, the program coordinators explained that mandatory modules consist of courses required by UNHAS that have to be taken by all of the students studying at the University. While compulsory modules contain courses required by each study program. Moreover, both programs include the writing of a final Bachelor's thesis, along with a preparatory research seminar.

The ***Master's program*** curriculum consists of *compulsory courses* and *skill-supporting elective courses.* The curriculum is designed in a way that students can finish all their coursework (18 SKS/30.6 ECTS) in the first semester. This allows them to focus on their research projects, including seminars, thesis, and publication (18 SKS/30.6 ECTS), starting from the second semester. Completing the Master's degree requires publishing research articles in reputable international journals.

ii. Contents

Bachelor in Chemistry and Bachelor in Pharmacy study programs

1. **Mandatory modules** covering social and character development include subjects such as *Religion Education, Civic Education, Pancasila, Bahasa, Maritime Socio-Cultural Studies, Science-Technology Perspective, and English*.

2. **Compulsory modules** covering the study of basic natural sciences and the fields of chemistry/pharmacy:

For the ***Bachelor's program in Chemistry***, these modules are structured around the five primary branches of chemistry: *Organic Chemistry, Inorganic Chemistry, Analytical Chemistry, Biochemistry, and Physical Chemistry*.

For the ***Bachelor's program in Pharmacy***, these include modules such as *Pharmaceutical Microbiology, Basic Biomedical Science, Natural Medicine, Pharmaceutics, Pharmaceutical Technology and Manufacturing, Drug Design and Evaluation, Natural Product Chemistry, Clinical Pharmacy, Drug Mechanism of Action and Kinetics.*

3. **Elective courses** offer opportunities for in-depth study of advanced chemistry/pharmacy topics (see Appendix).

The final **Thesis** in the 7th semester for both programs is preceded by a **Research Proposal** seminar in which students learn to create and defend a suitable project.

During their exchange with the program coordinators, the expert group sought clarification regarding how the Bachelor's program in Chemistry manages and addresses instances where modules match or overlap with each other. They learned that there is a systematic mapping of knowledge within each subject, which is closely monitored. However, the experts point out that this mapping is yet to be clearly reflected in each module, as there is no explicit description of the knowledge, skills, and competencies that students are expected to achieve. The experts emphasise the need to provide these descriptions and also ask the program coordinators to ensure that there is no content overlap between practical and theoretical courses.

Master in Pharmaceutical Science program

1. **Compulsory courses** in the master's program consist of modules such as *Philosophy of Pharmacy, Drug Design and Development, Statistics and Research, Methodology, Research Seminar I, Research Seminar II, Research Publication, Thesis, and Viva Voce.*

2. **Skill-supporting elective courses** enable students to deepen their knowledge in their respective areas of interest and, hence, to individualise their study path. Non-compulsory groups of subjects include *Pharmacology, Clinical and Social pharmacy, Herbal Medicine, Pharmaceutical Analysis, Pharmaceutical Technology, Pharmaceutical Microbiology,* and *Research Capacity.*

As noted above, students may focus on their research projects from the second semester, including the *thesis research proposal seminar*, *research publication* (one scientific article related to the thesis in an accredited international journal or national journal), *research results seminar*, and *thesis* and *defence examination.*

Upon perusal of the provided documentation and the University's website, the experts take note of the structure and content of the **Master's program**. **However, they observe a lack of clarity in the distinction between compulsory and elective courses, which they consider important, particularly for prospective students. Therefore, the experts ask the University to clearly state in the information available which courses are mandatory and which are elective.**

Along the same lines, the experts appreciate the availability of non-compulsory groups of subjects within the **Master's program. They note, nonetheless, that the documentation does not outline the recommended courses for specific specialisations, leaving prospective students uninformed about the elective options that could support their thesis. The experts, hence, request the University to define elective courses for the specialisations in the documentation.**

Upon reviewing the structure and content of the curricula for the three programs under review, along with the discussions held during the audit, the experts confirm that these programs are suitable to adequately prepare students for the labour market. **They commend the program coordinators for their dedication and significant efforts in optimising the programs. In line with this, the experts recommend the program coordinators of all three programs investigate the potential benefits of integrating courses from other faculties for further improvement of the curriculum.**

Internship

The internship is integrated into the ***Bachelor's program in Chemistry*** *curriculum* through the MBKM (*Merdeka Belajar Kampus Merdeka*, Independent Learning—Independent Campus) activities. It is included with the nomenclature "Field Work Practices," worth 4 Indonesian credits. According to data provided for the period 2020-2022, 45, 30, and 23 students, respectively, participated in the Internship program. These students were placed in 12 different companies for their internships.

For the ***Bachelor's program in Pharmacy***, an internship was introduced in 2020 as a new elective module with 2 SKS (3.4 ECTS) credits, which equals a 2-week (full-time) or 1-month (part-time) internship. This course is offered as an elective subject. The program is offered as an elective subject and has proven to be popular among students. In 2020, 37 students participated, while in 2021 and 2022, the number increased to 100 students. The internship opportunities are available in various places, including hospitals/clinics, distributor pharmacies (drugstores), the National Agency for Food and Drug Control (BPOM), and government and private companies. Students from the program also highlighted during the audit that they have opportunities for internships at international companies located in countries such as Japan.

In their exchange with the experts, industry representatives confirmed that their companies regularly host students from the programs under review as interns. Furthermore, these industry partners explained that the University maintains cooperation agreements with them, and they have experienced benefits from hosting students**. The expert team acknowledges and values this collaboration. However, concerning the Bachelor's program in Chemistry, they identify potential for enhanced collaboration with industry partners for more opportunities for students. Additionally, they see room for improvement in the program in the number of students engaging in internships at international companies.**

Regarding the ***Master's program in Pharmaceutical Science***, an internship in hospitals is provided to students for a duration of 4 weeks to enhance the capabilities of those interested in clinical pharmacy. This internship is integrated into the curriculum as part of the course *Drug Dosage Regimens*. Students receive direct supervision from clinical pharmacists at the hospital but are also required to consult about assigned case reports with their academic supervisor periodically.

Mobility

At UNHAS, the International Office oversees international student mobility, with a mandate to enhance the quality and quantity of international cooperation to support the university's international reputation. At the faculty level, there is an internationalisation officer tasked with facilitating both outbound and inbound student exchanges.

Additionally, the MBKM program enables students' participation in various learning opportunities outside their study program, based on their individual goals and interests. MBKM aims to foster independent learning processes, cultivate lifelong learners, and enhance student mobility. Offered schemes include:

1. Certified Internship,
2. Independent Study,
3. Teaching Campus,
4. Indonesian International Student Mobility Awards (IISMA),
5. Independent Student Exchange,
6. Rural Development (KKN Tematik),
7. Humanitarian Projects,
8. Research, and
9. Entrepreneurship.

Students have the freedom to choose any scheme of interest and earn credit points based on workload and completion time.

During the audit, the students confirmed to the experts that UNHAS promotes student mobility in their student journey. Some attendees affirmed that they had either conducted mobility abroad or planned to do so. The expert team also acknowledges the inclusion of English-taught courses within the ***Bachelor in Pharmacy*** study program, while noting that courses taught in Bahasa Indonesia still require the use of learning materials and reading lists in English.

The experts reviewed the data presented in the University's self-assessment report regarding outbound and inbound student mobility, alongside the list of activities supporting student mobility and internationalisation. **Drawing from the evidence presented and the discussions held during the audit, they identify a need for the Bachelor's program in Chemistry to strengthen its internationalisation efforts and further increase student mobility.**

In addition, the expert team believes that, in line with the university's internationalisation goals, it would be important for students in the Bachelor's and Master's programs to have an English proficiency certificate before they graduate.

iii. Curriculum review

As mentioned under criterion 1.1, the learning outcomes and curricula of the Bachelor's programs under scrutiny are reviewed every 4-5 years in compliance with the Indonesian Qualification Framework level 6 standards. These processes involve student, staff, alumni, and industry feedback, as well as experts in the field. For the ***Bachelor's program in Chemistry***, curriculum review has been performed in 2013, 2018, and 2022. The latest curriculum review for the ***Bachelor's program in Pharmacy*** was undertaken in 2020.

The curriculum for the ***Master's program in Pharmaceutical Scien***ce is reviewed at least once every four years, with the most recent review conducted in 2020. This process also involves a stakeholder process, in which hospital officials, pharmaceutical and food industry representatives, community pharmacists, and officials from the National Agency for Food and Drug Control are invited to participate as external stakeholders.

The experts recognise the efforts of the Faculties in conducting regular reviews of the curriculum with consultation from internal and external stakeholders. They particularly commend the teaching staff for their high level of involvement in the development of the curriculum.

Criterion 1.4 Admission requirements

Evidence:

- Self-assessment report
- UNHAS website: https://www.unhas.ac.id/
- UNHAS admission website: https://regpmb.unhas.ac.id/
- UNHAS Academic Calendar 2023/2024: https://www.unhas.ac.id/kalender-akademik/?lang=id
- Admission-related regulation as part of the self-assessment report
- Statistical data about the progress of studies for the degree programs under review
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Bachelor in Chemistry and Bachelor in Pharmacy study programs

Admission and selection of the prospective Bachelor's programs students are delimited by Regulation of the Minister of Education and Culture No 6/2020 concerning Admission of New Undergraduate Students in State Higher Education Institutions. At UNHAS, the Rector's Regulation No. 36621/UN4.1/PP.37/2017 establishes selection guidelines. The admission requirements, schedule, registration venue, and selection test are announced on UNHAS's admission webpage and thus accessible to all stakeholders.

Admissions for the undergraduate programs are organised in several ways, as described as follows:

1. SNBP—National Selection Based on Achievement (former SNMPTN): This mechanism is based on the academic achievement of students during their secondary school studies.
2. SNBT—Test-based National Selection: This mechanism is based on reasoning and problem-solving abilities. It measures cognitive potential, mathematical reasoning, literacy in Indonesian, and literacy in English.
3. Locally independent selection: This mechanism is based on independent tests, collaborative tests through a consortium of institutions, utilising scores from the test-based national selection, and/or other required assessment methods. Independent selection include:
    a. JNS—Entry Selection for Non-Subsidized Student, opportunity to those who have not succeeded in the National Selection Test.
    b. POSK—Talent Tracking Entry Selection, based on SNBT score and demonstrated skills/talents.

c. Affirmation, opportunity to students coming from disadvantaged backgrounds.
d. Leadership Talent Tracking for Student Organisation Leaders, open to high school graduates once elected as a student president in high school.
e. International students.

Intake is possible annually, with studies starting in August. The intake capacity per cohort is 112 students for the ***Bachelor's program in Chemistry*** and 196 students for the ***Bachelor's program in Pharmacy***. As part of the evidence provided, the University has included the following figures:

Year of Entry	All Modes of Entry					
	Bachelor's program in Chemistry			Bachelor's program in Pharmacy		
	Application	Accepted	Registered	Application	Accepted	Registered
2020	493	93	84	3085	169	133
2021	355	104	95	4157	168	148
2022	396	112	98	4499	196	155
2023	94	89	87			

Annual Student Intake Bachelor's programs under review. Source: Appendix Self-assessment report, UNHAS.

The majority of students at both programs are admitted through the first two paths, which are SNBP and SNBT (and their former equivalent). According to the data provided, only the ***Bachelor's program in Pharmacy*** reports international students. In 2021, three international students applied, and one of them was accepted and registered.

Master in Pharmaceutical Science program

Like the undergraduate programs, the Master's program adheres to Rector's Regulation No. 36621/UN4.1/PP.37/2017, which sets forth admission guidelines for new students. As described in the self-assessment report, applicants for the ***Master's degree in Pharmaceutical Science*** at UNHAS need to fulfil a number of prerequisites. These include, among others, having a Bachelor's degree or equivalent with at least 50% chemistry or life science content and never declaring a drop-out at UNHAS at the same educational level.

Admission is possible annually, with studies starting in September. The University has provided the following enrolment numbers as part of its appendices to the self-assessment report:

Year of Entry	Mode of Entry	Number of Applicants		
		Applied	Accepted	Registered
2020	Regular	21	19	19
	International	0	0	0
2021	Regular	78	50	50
	International	6	3	3
2022	Regular	62	50	45
	International	12	3	0

Annual Student Intake Master's programs under review. Source: Appendix Self-assessment report, UNHAS.

In the course of the discussion with the program coordinators, the experts sought clarification on whether there are any other major requirements for admission to the Master's program and how potential students can find information about the program and the admission process. The experts were informed that student candidates are directed to visit the admission website at https://regpmb.unhas.ac.id/, which is expected to provide all the relevant information. **However, during the on-site visit, the experts noticed that the information was not available through the given link. Therefore, the expert team highly emphasises the need to clearly state the admission requirements for the Master's program, making them publicly available to all interested stakeholders. This particularly concerns the requirements regarding the applicant's previous education background (i.e., whether any matriculation subjects were needed).**

In their assessment of this criterion, and aside from the above, the experts find the admission rules to be binding, transparent, and based on decrees by the Ministry of Research, Technology and Higher Education and on the UNHAS's written regulations.

The experts confirm that the admission requirements support the students from the three programs under review in achieving the intended learning outcomes. This conclusion is further substantiated by the "drop-out" rates provided by the Faculty of Mathematics and Natural Sciences and the Faculty of Pharmacy, indicating that the majority of students graduate, albeit slightly exceeding the standard study period.

The experts also see evidence that the University is tracking its students' progress and achievements. Thus, an instrument is in place to monitor the performance records of students with various enrolment backgrounds.

Criterion 1.5 Workload and Credits

Evidence:

- Self-assessment report
- Curriculum Documents, all programs under review
- Credit conversion tables; all programs under review
- Academic Guidelines, all programs under review
- Sample Student's Workload Survey Reports; all programs under review
- Guidelines for Credit Transfer & Credit Equivalency as published on the university's website.
- Discussions during the audit.

Preliminary assessment and analysis of the experts:

At UNHAS, all study programs must follow the Indonesian credit system (SKS) regulations. Each credit is distributed between guided and independent learning activities According to the National Standards for Higher Education (SNPT), the learning activities are lectures, practicum, and seminars.

The duration of one course is generally 16 weeks per semester. In this term, 1 SKS course consists of 16 weeks of direct contact (50 minutes), 16 weeks of assignments (60 minutes), plus 16 weeks of independent study (60 minutes). Consequently, the total hours spent for 1 SKS course in one semester will be 2720 minutes or 45.3 hours per semester. At UNHAS, 1 ECTS is calculated as 27 hours of workload per semester; thus, 1 SKS equals 1.7 ECTS.

Bachelor in Chemistry and Bachelor in Pharmacy study program

As noted earlier, the Bachelor's programs curricula require a minimum study load of 144 Indonesian credits (244.8 ECTS):

1. The ***Bachelor's program in Chemistry*** general structure consists of mandatory courses (14 SKS/23.8 ECTS), compulsory courses (95 SKS/161.5 ECTS) and elective courses.
2. The **Bachelor's program in Pharmacy** general structure comprises mandatory courses (14 SKS/23.8 ECTS), compulsory courses (116 SKS/197.2 ECTS) and elective courses.

Each semester, students can take a maximum of 24 credits (40.8 ECTS). UNHAS assesses the study workload through recurring student satisfaction surveys created by the Faculty Internal Quality Assurance System (FIQAS). The student workload survey reports for both programs provide evidence of these assessments (more information is available under Criterion 5). As the results reveal, students in general agree that the workload and time spent to complete regular courses and research thesis is in accordance with the credits given. During the on-site visit, the expert panel confirmed with the program coordinators that student workload is monitored through student surveys and lecturer feedback. On their part, students did not account for any critical imbalance or excessive workload during the audit. They reported having sufficient time to participate in other activities outside study.

Bachelor students are required to attend their classes in line with established regulations. They must be present for at least 80% of all learning activities. If a student's attendance falls below these percentages, they are not allowed to attend the final examination. For Bachelor's students, the maximum study duration is 7 years (14 semesters).

Master in Pharmaceutical Science program

The Master's program curriculum requires a study load of 36-42 Indonesian credits (equivalent to 61.2-71.4 ECTS), comprising compulsory courses (26 SKS/44.2 ECTS) and elective courses (10-13 SKS/17-22.1 ECTS).

Similar to the Bachelor's programs, the Faculty Quality Assurance System conducts surveys to gather students' opinions, ensuring that the credits awarded for each module accurately reflect the level of student effort. The results have indicated that students perceive the effort and time required to complete regular classes as reasonable given the credits awarded. As a result of feedback, there have been recent modifications to the academic regulations for master's students, particularly regarding publication in scientific journals. Now, publications must be in "under review" status rather than "accepted" status before the viva voce. During their exchange with the experts, Master students validate the survey results. They indicate their workload is reasonable, giving them enough time to balance studies with other commitments.

UNHAS provided statistical data about the average study length for the programs under review and the number of dropouts. According to the 2022 data, the average time required to complete studies for the ***Bachelor's program in Chemistry*** is 4.33 years, and for the Bachelor's program in Pharmacy, it is 4.0 years. The average time required to complete studies for the ***Master's program in Pharmaceutical Science*** is 2.20 years.

The university's figures show that almost all students complete the study programs, with a low number of dropouts. These data confirm that the programs under review can be successfully completed.

The experts confirm that regulations for the transfer of credits obtained outside of UNHAS exist (https://dikmawa.unhas.ac.id/wp-content/uploads/2023/08/dokumen-1620651628-passkey_Credit-Transfer-UNHAS.pdf). The experts as well as attest that the program's module handbooks clearly distinguish between credits given for various forms of supervised studies and self-study time.

The experts are generally satisfied with the way UNHAS and the involved Faculties administer the academic credit system. All in all, the experts confirm that a credit system centred on student workload is in place, that this workload encompasses both contact hours and self-study time, and that credits are granted in accordance with the associated workload.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-assessment report.
- Academic Guidelines, all programs under review.
- Mapping of Teaching and Learning Strategies towards the Achievement of ILOs, all programs under review.
- Discussions during the audit.

Preliminary assessment and analysis of the experts:

In its self-assessment report, UNHAS records that appropriate didactical instruments and methods are implemented for the programs under scrutiny. The variations in learning methods and tools are adjusted to the level of knowledge, skills, and competences set in each module. The choice of learning method depends on each lecturer, who can freely select appropriate learning methods that adhere to the study materials and support ILOs' achievements. The teaching staff at UNHAS uses a Semester Learning Plan to document the instruments and methods for a course.

Asked about the possibilities of face-to-face versus online teaching, the teaching staff explained to the experts that, according to the Rector's directive, their primary aim should be to conduct in-person teaching. However, they acknowledged the possibility of incorporating online teaching, with a maximum allowance of 40% throughout the 16-week semester.

The university's approach to learning is student-centred and involves teaching methods that prioritise the student's involvement in the learning process. Government regulations and internal curricula have recently focused on increasing project-based learning. This approach helps students collect and analyse data, problem-solve, and present research results in laboratory and field settings. The Independent Learning-Independent Campus (MBKM) policy has been integrated into the Bachelor's curricula to give students more flexibility in achieving their goals. With MBKM, students can learn from different institutions, industries, and communities, allowing for a more student-centred approach to education. Furthermore, the availability of laboratory facilities, including education, research, advanced labs, and field labs, will enable students to conduct independent research.

Moreover, the involved Faculties work on exposing all students to relevant external parties through initiatives such as inviting guest lecturers from the industry, offering internships, and establishing partnerships with foreign institutions. **However, based on the discussions during the audit, the experts see the need for increased participation of external (international) experts in teaching courses within the Bachelor's program in Pharmacy.**

Similarly, for the Bachelor's program in Chemistry, they also identify opportunities for improvement in expanding students' exposure to relevant external knowledge and experience, as specified under Criterion 1.3.

The program coordinators for the programs under review point to the information in the module handbooks, which clearly state the teaching methods applied in each learning unit, with practical instructions for laboratory work, learning resources and the learning plan and assessment. The learning management system (SIKOLA) has been used by lecturers for learning and teaching processes, especially for supporting the hybrid learning system.

All relevant programs have courses on research methodology. Depending on their academic level, these courses guide students in developing, writing, and publishing papers and theses. To prevent plagiarism, an anti-plagiarism software (Turnitin) subscription is used. In the discussions with students, the experts learn that they are generally satisfied with the quality of teaching and learning in the programs under review.

In summary, the expert group considers the range of teaching methods and instruments suitable to support the students in achieving the intended learning outcomes. They confirm the study concepts of all programs under scrutiny comprise a variety of teaching and learning forms as well as practical parts adapted to the respective subject culture. Finally, they attest that the imparting of academic research skills is sufficiently ensured.

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

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

1.1 Marine chemistry specialisation in the Bachelor's Degree in Chemistry module handbook

The experts reviewed the additional documents and find that the University has revised the module handbook of some courses with additional terms of marine chemistry. These include "Chemistry of Marine Environmental Analysis," which focuses on determining marine environment parameters and analysing marine environmental contamination. Additionally, the subject module "Organic Chemistry for Natural Materials of the Maritime Continent" provides study material on organic compounds found in marine natural materials and the isolation techniques for these compounds. The course aims to equip students with the knowledge and skills to investigate natural resources on land and at sea. Moreover, the documents of apprenticeship including the rules and examples of student's reports are also available. The experts appreciate the University's additional information and see no need to issue further recommendations in this regard.

1.3 (1) Description of knowledge, skills and competencies, and content overlap in the Bachelor's Degree in Chemistry

The experts appreciate the University's explanation of how the subject of the Undergraduate Program in Chemistry is prepared. They acknowledge the approach of considering the results of evaluations to create an integrated mapping of study materials in knowledge and skills to ensure no overlap occurs. The experts also reviewed the mapping table for study materials, courses, CPL, and credits.
However, the assessment team note that the module handbook still lacks an explicit description of the knowledge, skills, and competences students are expected to achieve. Therefore, the experts maintain their requirements as per the applicable criteria in this regard and ask the University to work on defining these dimensions and ensure that practical and theoretical courses do not overlap in content.

1.3 (2) Distinction between compulsory and elective courses and recommended courses for specific specialisations in the Master in Pharmaceutical Science Study Program

After reviewing the provided link to the program's website (https://farmasi.unhas.ac.id/index.php/magister-s2/), the experts confirm that it provides a more detailed description of the curricular structure. Additional information has been added to a table that displays the names of the courses, the type of course (compulsory or elective), and the course specialisation within the program. The courses are categorised in a particular module, such as "pharmacology, clinical and social pharmacy", "herbal medicine", "pharmaceutical analysis", "pharmaceutical technology", and "pharmaceutical microbiology", which can be selected by students to support their thesis. The other course categories are provided to support the research capacity of the students. The experts believe that there is no need to issue a recommendation in this regard.

1.3 (3) Integration of courses from other Faculties in the three programs under review.

Concerning the potential benefits of integrating courses from other faculties to enhance the curriculum, the experts recognise the MBKM policy as a reference for aligning the curriculum by integrating learning outcomes into graduate competencies. They also commend the initiative of involving lecturers from other faculties in the teaching teams for certain courses within the Bachelor in Pharmacy and Master in Pharmaceutical Science study programs.
Nevertheless, the expert panel upholds its recommendation, noting that certain measures involve future developments with no concrete implementation currently underway.

1.3 (4) Enhanced collaboration with industry partners and more opportunities for internship in international companies in the Bachelor's program in Chemistry.

Regarding the proposed increase in collaboration with industry partners and the expansion of internship opportunities within international companies, the experts commend the ongoing initiatives in this area. They also acknowledge the Department of Chemistry's

adherence to the University-wide regulations governing student exchange programs or internships.
However, considering the input received from industry representatives, alumni, and students, the assessment team maintains its recommendation, noting opportunities for further strengthening of industry partnerships. Additionally, they suggest an increase in the number of students participating in internships with international companies.

1.3 (5) Strengthened internationalisation efforts and increased student mobility in the Bachelor's program in Chemistry.

In regards to the suggested enhancement of internationalisation efforts and expansion in student mobility, the experts appreciate the current actions taken in this domain. They are pleased to note that this year, Chemistry students have already successfully passed the selection process to participate in international programs scheduled for implementation in June- July 2024.
The assessment team also acknowledges the current efforts to involve international expertise in the Bachelor's program in Chemistry, including experts from the Halal Science Centre at Chulalongkorn University in Thailand and Universiti Teknologi Malaysia, to name a few.
However, after reviewing the evidence presented and the discussions during the visit, the auditors maintain their recommendation as they see room to strengthen internationalisation efforts and further increase student mobility.

1.3 (6) English proficiency certificate before graduation for the three programs under review

Concerning the suggested English proficiency certificate before Bachelor's and Master's students graduate, the experts acknowledge the new information provided, which had not been included in the regulations of the study programs inspected. According to UNHAS Rector's Decree No. 30/UN4.1/2023, prospective master's program students at UNHAS are required to submit an English proficiency test certificate with a minimum score of 450 on the TOEFL Test or 4.0 on the IELTS. Alternatively, they can pass an English language test recognised by UNHAS as part of the admission requirements. In the undergraduate study programs, Rector's Decree No. 29/UN4.1/2023 regulates the new requirements for an English proficiency certificate as a condition for accepting new students.
However, the expert panel stands by its recommendation for the Bachelor's programs as the English proficiency certificate requirement has yet to be applied.

1.4 Availability and transparency of admission requirements for the Master's program

After reviewing the Master's program website, the experts confirm that it contains information on entry requirements, which can be accessed by prospective students and other interested stakeholders. The website also provides a link to the University's admission website, https://regpmb.unhas.ac.id/, which specifically declares the specific requirements: However, the assessment team believes that the admission website is not

very user-friendly, making it difficult to find specific information about the study program. They see that the requirements and information about the MPSP are in https://farmasi.unhas.ac.id/index.php/magister-s2/, but the registration steps are in https://regpmb.unhas.ac.id. Therefore, they recommend that the program seek more user-friendly options to present the information to prospective students.

1.6 Increased participation of external (international) experts in teaching courses within the Bachelor's program in Pharmacy.

The experts appreciate the University's response and applaud the current efforts to involve foreign lecturers in the Bachelor's program in Pharmacy. They welcome the participation of a German expert as an instructor for Pharmacotherapy I and Pharmacology I. The experts also acknowledge the invitation of several foreign lecturers as guest speakers in 2023, both online and offline, from countries such as Malaysia, Singapore, Vietnam, Hungary, Thailand, and Brunei. The audit team take note on the faculty's arrangement for the arrival of other foreign lecturers through the DAAD Gastdozentprogramm grant in October 2024 and SES funding in August 2024.
Nevertheless, as these activities are yet to be implemented, the expert panel maintains its recommendation and encourages the University to continue increasing the involvement of external (international) experts in teaching courses.

1.6 (2) Increased exposure to relevant external knowledge and experience within the Bachelor's program in Chemistry.

Address under 1.3 (5)

Apart from the previously mentioned points, the experts confirm their preliminary assessments and see this criterion as fulfilled, subject to the outlined requirements and recommendations.

2. Exams: System, Concept and Organization

Criterion 2 Exams: System, concept and organization

Evidence:

- Self-assessment report
- Module descriptions, all programs under review
- Academic Guidelines, all programs under review
- UNHAS academic calendar https://www.unhas.ac.id/academic-calendar/
- Examination-related procedures and regulations

- Samples of student's work (projects, exams and thesis)
- Discussions during the audit.

Preliminary assessment and analysis of the experts:

Forms of Examinations and Exam Schedule

According to the self-assessment report, formative and summative assessments evaluate students' academic performance.

Exams measure students' learning outcomes (knowledge, skills and attitudes) according to a predefined grading scale reference. The module handbook specifies the course's intended learning outcomes and identifies the types of examinations used to assess the achievement of these learning objectives. Various assessment methods are used, such as written assignments, quizzes, tests, reports, practical lab assignments, project reports, presentations, and oral exams. The learning contract determine whether the examination methods are written or oral.

During the first week of the lecture and practical session, students are informed of what is required to pass the respective module, including correction and grading as part of the Semester Learning Plan. The form and length of each exam are specified in the course descriptions available to the students via the university´s learning management system (SIKOLA). The latter facilitates access to study material and the interaction between lecturers and students. The students also learn about mid-term and final exams via the academic calendar. Midterm examinations typically occur during the eighth week, with final examinations in the sixteenth.

The experts confirm that all examinations and their conduct across the different qualification levels are governed by a range of university-wide and Faculty-specific regulations.

Concerning the assessment of students' internships, the experts see evidence that students are required to document any soft and technical skills they have obtained and submit a final report. Assessment is also based on internship logbooks, which external supervisors from students' placements use to evaluate their performance on a daily basis. Particularly for the ***Bachelor's in Chemistry*** and ***Master's in Pharmaceutical Science*** study programs, students must present their internship reports in front of instructors and lecturers.

Grading and Graduation Requirements

The final grade of each module is a combination of the scores of the individual types of assessment. The final grade required to pass the module is given in the module handbook.

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

Range of Numerical Scores	Grades in Letters	Score Conversion Grade
85 – 100	A	4.00
80 - < 85	A-	3.75
75 - < 80	B+	3.50
70 - < 75	B	3.00
65 - < 70	B-	2.75
60 - < 65	C+	2.50
50 - < 60	C	2.00
40 - < 50	D	1.00
< 40	E	0.00

Rector's regulation No 2781/UN4.1/KEP/2018 concerning undergraduate program implementation at UNHAS. Source: Appendix Self-assessment report, UNHAS.

Students pass if they obtain an A-D grade, while an E is considered a fail. Based on the regulation, students are required to attend a minimum of 80% of all learning activities to be allowed to take the final examination. However, if students face exceptional circumstances, such as emergencies, hospitalisation, or bereavement, which prevents them from sitting for midterms or final exams, they may be eligible to take a follow-up exam. The Faculty will determine a time for the makeup exam no later than 3 weeks after the scheduled exam, and students must provide suitable evidence to support their request.

Final grades are available on students' academic accounts NEOSIA no later than 2 weeks after the last exams. When students have objections to their exam results, they have the chance to appeal to the course coordinator within two weeks of being notified of the results, as grades can only be rectified within this timeframe. The students confirmed during the audit that an appeal mechanism exists if they perceive their grades as unfair.

The ***Bachelor's program*** students who receive a grade of D or E may be eligible to take a resit exam if they are registered in the corresponding semester and have actively participated in all learning activities or were absent for acceptable reasons. Regarding the ***Master in Pharmaceutical Science*** program, students who fail a subject are immediately terminated. Therefore, many lecturers provide remedial opportunities for students with low scores before final grades are released. Consequently, Master's students have a zero rate of resits. **Following their review of examination-related documentation, as well as their analysis of the information gathered during the on-site visit, the experts see an opportunity to develop and clarify the procedures for implementing resit and remedial examinations. They specifically ask the University to establish clear regulations regarding exam resits as well as define the maximum grade allowable for students taking remedial exams.**

In order to graduate from the ***Bachelor's programs***, students must have completed the required 144 credits with a thesis examination grade of at least C and a minimum GPA of 2.00. They are also required to have accomplished all administrative requirements conditioned by the study program, Faculty, and UNHAS. The maximum study period for undergraduate students is 14 semesters, except for students who get an extension of their studies.

To graduate from the ***Master's program***, students must earn passing grades in all credit units as outlined in the curriculum, with a minimum grade of C for their thesis defence and a minimum GPA of 3.00. Additionally, they must provide proof of acceptance for publication and fulfil all administrative requirements specified by the Faculty of Pharmacy.

UNHAS has a policy on academic integrity in all student activity, including examinations and assignments. According to the UNHAS Student Code of Ethics, if students engage in plagiarism, they will face sanctions that correspond to the severity of their actions, which may range from academic penalties and suspension to expulsion. To help prevent plagiarism, the university offers teachers and students access to anti-plagiarism software, which can be used to check for similarities in written work.

Thesis

In accordance with academic guidelines, ***Bachelor's*** and ***Master's degree*** students are required to complete a research project as their final assignment before graduation. This project involves creating and presenting a research proposal, conducting research, analysing and interpreting data, and writing a thesis. After finishing the research and thesis writing, students must defend their thesis in front of a panel of examiners, which includes their supervisors and two internal examiners for ***Bachelor's degree*** programs and three examiners for the ***Master's degree*** program.

In assessing this criterion, and aside from the abovementioned request, the expert group finds that appropriate university-wide and Faculty-specific rules and procedures govern the examination systems. These rules and procedures are adequately communicated and transparently published. The students in the interviews confirmed that they are aware of all necessary information regarding examination schedules, forms, and grading rules. They are reportedly given sufficient time to prepare for the exams adequately.

Lecturers in the discussion report that a variety of exam forms are used to check the attainment of the respective learning outcomes, including a mix of oral and written exams. The experts acknowledge that forms and assessment rubrics to assess the quality of the students' work are available for **all programs** under review. **However, they did not see enough evidence that the marking criteria is written down before the course starts or**

that it is publically available with clear objective criteria. The expert team hence asks the University to take the necessary steps to address this matter.

The expert group also examined a selection of final Bachelor's and Master's theses and determined that they were of an appropriate academic level.

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

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

2.1 Procedure for implementing resit and remedial examinations in <u>all programs</u>

After reviewing the provided links, the experts confirm that UNHAS has policies regarding assessment, remedial, and evaluation of learning outcomes. Additionally, each faculty member also regulates the details of resit and remedial procedures through the dean's regulations. Regarding several technical implementation mechanisms, such as whether students must repeat all courses in the resit process or just retake the exams, these are referred back to the respective course coordinator and can be conducted at any stage of learning or at the end of the semester. The experts appreciate this information and believe that there is no need to issue a recommendation in this regard.

2.1 (2) Making marking criteria available with clear objective criteria in <u>all programs</u>

The experts appreciate the University's clarification regarding the Semester Learning Plan (SLP) for each course. Upon reviewing the SLP provided for the Master's level course titled "Drug Synthesis", they confirm the inclusion of various key components such as criteria, indicators, and assessment weighting.
Nevertheless, the audit team has been unable to confirm that marking criteria are consistently defined across all programs. Therefore, they request the University to ensure that marking criteria are established prior to the commencement of each course and are made publicly available with clearly defined objective criteria.

Apart from the previously mentioned points, the experts confirm their preliminary assessments and see this criterion as fulfilled, subject to the outlined requirement.

3. Resources

Criterion 3.1 HR Resources, Staff Development and Student Support

Evidence:

- Self-Assessment Report

- Staff Handbooks and Lecturer Profiles, all programs under review
- Operational Guidelines for Lecturer Workload
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Staff

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. In addition, the responsibilities and tasks of a staff member concerning teaching, research, and supervision depend on the academic position.

Bachelor in Chemistry and Bachelor in Pharmacy study programs

Based on the self-assessment report, the ***Bachelor's degree program in Chemistry*** has a total of 26 teaching staff members. This includes 4 full professors (15%), 10 associate professors (39%), 7 assistant professors (27%) and 5 lecturers (19%). 80% of the teaching staff hold a doctorate degree.

The ***Bachelor's degree program in Pharmacy*** has 44 academic lecturers, including 10 full professors (24%), 8 associate professors (19%), 13 assistant professors (31%), and 11 lecturers (26%). 48% of the teaching staff have a doctorate degree.

The Indonesian government has set specific staff-student ratios for universities, which are outlined in the Ministry of Education, Culture, Research and Higher Education's regulation. The ideal ratio of staff to active students is 1:20 - 1:30. Currently, the ***Bachelor in Chemistry*** has a ratio of 1:8, while the ***Bachelor in Pharmacy*** has a ratio of 1:14.

Master in Pharmaceutical Science program

The self-assessment report also provides information on the academic staff of the Master's program in Pharmaceutical Science. The program has 10 professors, 4 associate professors, and 5 assistant professors, specialised in pharmacy-related fields, such as microbiology, phytochemistry, pharmacotherapy, pharmacognosy, pharmaceutical technology, drug synthesis, pharmacology, clinical pharmacy, and dermal-transdermal drug delivery. All of them hold a doctoral degree. Additionally, the Master's program also involves lecturers from other departments, together with guest lecturers from industry, pharmacies, and hospitals.

The expert team confirm that the ratio of lecturers to students is appropriate to fulfil the current needs of the programs. They commend the University for upholding this high standard and hope that this can be maintained in the future.

However, upon reviewing the documentation provided and gathering feedback from stakeholders during the on-site visit, it is unclear to the experts whether there are sufficient technical staff to meet the needs of the programs. Therefore, the experts request that the coordinators <u>of all programs</u> provide information on the number of technical staff available for courses and practicums.

At UNHAS, the academic staff consists mainly of permanent full-time government officers. However, there is also the possibility to recruit permanent non-government staff. This recruitment is based on an analysis of student enrolments, science and technology trends, and the evolving demands for graduate skills and knowledge. Minimum academic requirements include a Master of Science for roles at the ***Bachelor in Chemistry*** and ***Bachelor in Pharmacy*** study programs, and a Doctoral degree for positions at the ***Master in Pharmaceutical Science*** program.

Teaching staff may face termination for reasons including poor performance, as evaluated by students at the end of the academic year, or serious breaches of the academic Code of Ethics. In instances of dismissal, disciplinary proceedings are carried out through the Disciplinary Commission and the University Internal Control Unit, in accordance with established staffing regulations and protocols.

Regarding promotion, lecturers who are public servants have to follow the system regulated by the government. The teaching staff's promotion to a higher academic position is based on several factors, such as achievement in teaching, research, and community service activities (Tridharma Perguruan Tinggi). In order to be promoted to the position of a full professor, the applicant must hold a doctoral degree.

<u>Job Conditions and Performance Review of Staff</u>

According to the feedback provided by teachers, at the beginning of the semester, they formulate their work objectives specifying the workload for standard tasks and functions. All lecturers must meet the national standards for lecturer workload of a minimum of 12 credits and a maximum of 16 credits of the so-called Tri Dharma.

Linked to this, the experts inquired with the teaching staff about the maximum number of students a staff member can supervise. They learned that, according to the Rector's regulation, a professor can supervise up to 18 students. The experts noted, nonetheless, that there is no specific number of students defined by academic level. They hence

recommend that the University's regulation clearly states the maximum number of students per academic level - bachelor's, master's, and doctoral degrees - that can be supervised by staff.

Monitoring and evaluation of faculty members' performance in education, research and community service are conducted every semester based on Operational Guidelines for Lecturer Workload (PO-BKD). The rewards provided to teaching staff are determined by the evaluation of outcomes of their workload and are disbursed on a monthly basis, including lecturer certification and performance incentives.

For the sake of performance evaluation and as outlined under Criterion 5, compulsory course evaluations are submitted by the students for each course. As confirmed by the program coordinators during the audit, the outcomes of these evaluations contribute to the overall staff assessment.

In terms of research, academic staff of the degree programs under review conduct their research projects collaboratively in research groups. From the discussion with the teaching staff, the experts particularly highlight the good level of collaboration in research across Faculties. Most research projects are supported by grants from the university, the government, private companies, and international institutions. Some researchers are also engaged in collaboration with other domestic and overseas universities as well as research centres and other institutions specifically for industry-related research. The academic staff is requested to disseminate research results at national and international conferences and publish them in reputable national and international journals. The expert team also learned from the teaching staff that a reward scheme exists to incentivise publications in Q1 and Q2 journals.

Staff Development

The formal recognition of the quality of academic staff within the study programs is achieved through the 'Certification of Lecturers', which is a process overseen by the government in accordance with Regulation No. 37/2009.

To support this process, UNHAS offers a range of training opportunities. The Directorate of Quality Assurance and Educational Development plays a pivotal role in enhancing the quality of education and teaching at the University. The Directorate conducts training programs aimed at improving pedagogical skills, such as the "Teaching Learning Improvement Workshop" for teaching staff. Additionally, there are workshops focused on character building, which aim to increase the number of publications in international peer-reviewed journals.

Financial resources are available for staff members to go abroad for a limited time and to participate in conferences or other events to stay up to date with the scientific development in their area of expertise. In addition, the Faculties promote the internationalisation process at UNHAS by hosting international scientific events and inviting international guest lecturers. Further study support is provided to teaching staff with master's education, aiming for 100% of the teaching staff to attain a doctoral degree qualification.

The experts discuss the opportunities to develop their skills with the members of the teaching staff and learn that the teachers are satisfied with the internal qualification program at UNHAS. This provides them opportunities to further their career, improve their didactic abilities, spend time abroad to attend conferences and participate in workshops and seminars.

In their appreciation of this criterion, the experts come to the following conclusions:

In the experts' opinion, the teaching staff's composition, scientific orientation and qualification are suitable for successfully implementing and sustaining the programs under review.

In the discussions with the expert team, the lecturers confirmed that a range of professional development options are available to them. UNHAS's support for research and publication is well-recognised by the lecturers. The experts appreciate the University's efforts to support teaching staff in developing their skills.

During the interviews, teaching staff expressed satisfaction with their working conditions and professional development chances and exhibited a strong commitment to their students. The expert group commend the teaching staff for their motivation and willingness to support the University in meeting its strategic goals. As regards the students, they are equally satisfied with the approachable, enthusiastic, and motivated teaching staff as well as with the learning environment.

Criterion 3.2 Funds and equipment

Evidence:

- Self-assessment report
- Discussion during the audit
- Admission of New Students webpage: https://regpmb.unhas.ac.id/
- Guided tour through the University's facilities and laboratories

Preliminary assessment and analysis of the experts:

According to information provided in the self-assessment report, the University's primary funding sources are the Indonesian government and tuition fees. Other sources of funding include partnerships with other parties. As discussed with the program coordinators and the teaching staff, there is basic funding from the faculty for teaching, research and community service.

Additional funds from grants can be applied through government and non-government organisations/institutions for research and teaching projects, student and staff exchange, community engagements, and equipment. ***Bachelor*** students' tuition fees are determined every year by a Rector's decree. The fees/charges amount is based on the student's economic background and the new student's admission scheme. There are seven categories of tuition fees. For the ***Master's program in Pharmaceutical Science***, the published tuition fee is 10,000,000 per semester (584 Euro/semester).

Collaborations

As part of its self-assessment report, the University provided a list of cooperation agreements with both local and international universities, as well as company partners. This was also reflected during the discussion round with industry representatives and the teaching staff, where collaborations with various partners were highlighted.

Infrastructure and technical equipment

During the audit, the expert group visited the following facilities in order to assess the quality of infrastructure and technical equipment:

1. Center Library

Bachelor in Chemistry study program

2. Research and Science Development Laboratory (2nd floor)
3. Physical Chemistry Laboratory (4 floor)
4. Analytical Chemistry Laboratory (4 floor)
5. Radiation Chemistry Laboratory (3rd floor)
6. Biochemistry Laboratory (3rd floor)
7. Meeting Room (1st floor)

Bachelor in Phamacy and Master in Pharmaceutical Science study programs

8. Pharmaceutical Chemistry Lab and Clinical Pharmacy Lab (4th floor)
9. Biopharmacy/Pharmacology Toxicology Lab (3rd floor)
10. Pharmaceutics Lab and Microbiology Lab (1st floor)

11. UNHAS Hospital
12. Biofarmaceutical Lab

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

Bachelor in Chemistry study program

During the visit to the teaching and research laboratories serving the **Bachelor's program in Chemistry**, the expert team found no bottlenecks due to missing equipment or lack of infrastructure. Technical equipment is available for teaching students at the Bachelor's level, as well as advanced instruments for research activities. The experts learned that lab technicians operate advanced instruments, while students use older instruments for teaching and practicum. After training and instructions from either senior students or lab technicians, students can use and operate the instruments in the laboratories by themselves. All required equipment for the practicums is available, so there is no need to share facilities with other faculties. Bachelor in Chemistry students confirmed to the experts their positive impression of the equipment and technical infrastructure, expressing satisfaction with the available resources.

Bachelor in Pharmacy and Master in Pharmaceutical Science study programs

During the visit to the teaching and research infrastructure at the Faculty of Pharmacy, the experts got an overall positive impression, noting that it offers students a comfortable learning environment. The laboratories at the Faculty of Pharmacy are equipped with some facilities with the animal laboratory, for example, having their own breeding. Although not all facilities are equipped with modern equipment or instruments. Some instruments, such as DSC, SEM, and XRD, are unavailable, meaning that the student has to test their samples outside the Faculty. **The experts believe that the laboratory facilities could be better integrated/connected into the Faculty building to avoid students having to go to other premises to test their samples after the preparation step. They also suggest optimising the lab space for students by sharing laboratory space between different units to accommodate multiple practical sessions in the rooms.**

Apart from the above, the experts learned from the discussion with the teaching staff that the labs provide an environment conducive to hands-on learning and practical application of theoretical knowledge for students. The spacious and well-organised labs provide students with ample room to conduct experiments and encourage exploration and teamwork. Moreover, the Faculty members and staff contribute significantly to the positive atmosphere. The accessibility of professors and their willingness to guide students in both

academic and research endeavours contribute to a nurturing educational environment. In discussions with the expert team, the students from the Bachelor in Pharmacy and Master's programs confirmed that they are generally satisfied with the available facilities and equipment and affirmed that the Faculty of Pharmacy provides a positive learning environment.

Regarding the central library, the expert team learned that it offers services to UNHAS faculty members, administrative staff, and students. Operating hours are from 8 am to 6 pm on weekdays, with continuous access to online resources available 24/7. The services encompass lending physical and e-books, as well as access to diverse scientific databases. Additionally, dedicated learning rooms are available for students to study foreign languages like German, Dutch, and Japanese. These rooms host classes in collaboration with embassies for interested students. Furthermore, a braille corner caters to visually impaired students, offering braille books and audio equipment to aid their learning. During the discussion with the experts, the students expressed their satisfaction with the library and its available literature. **However, the current operating time seems to not fully accommodate their need for learning or discussion space outside of teaching hours. Therefore, the experts suggest that the University provides students access to learning rooms outside the library operating time. They also recommend that the library consider extending their service hours, including weekends.**

Aside from the above, the experts find no severe bottlenecks due to missing equipment or a lack of infrastructure. In discussions with the expert team, the students confirm that they are generally satisfied with the available facilities and equipment.

Overall, the auditors can confirm that facilities are sufficient for guaranteeing the sustenance of all three programs under review.

Supporting resources for staff

UNHAS provides comprehensive support for their lecturers, which includes various opportunities such as pursuing higher academic degrees abroad, participating in national and international conferences, receiving training to enhance didactic and managerial competencies, and assistance in realising their research aspirations. Funding for research is available from several sources, including the University, government, and national and international institutions.

UNHAS also extends support to their lecturers to disseminate the results of their research. The teaching staff have confirmed the existence of university-level service units that are dedicated to assisting with paper and proposal writing. The expert team commends UNHAS

for their well-established and developed service units that support research and publications.

Supporting resources for students

As mentioned previously, UNHAS has an online learning management system called "SIKOLA" through which students have access to lectures, materials, student-lecturer interactions, as well as for administrative processes. During the auditors' exchanges with students and alumni during the on-site visit, the latter also emphasised their satisfaction with the online services.

Every student is assigned to an academic advisor lecturer who is responsible for student activities from beginning to end. The academic advisors can monitor students' performance online through the academic portal NEOSIA. The students confirm during the discussion with the expert group that they all have an academic advisor, that they meet regularly, and that they can always contact their advisor personally and ask for help or advice.

Besides the above, students can rely on an early introductory program at the start of their studies, as well as on several dedicated support units, such as the Scholarship Management Unit, Library, and Career and Counselling Services. Additionally, there are various events and developmental programs available for students to participate in outside of the classroom, including student organisations and clubs, as well as a program that promotes entrepreneurial skills.

The experts attest that there is a good and trustful relationship between the students and the teaching staff; enough resources are available to provide individual assistance, advice and support for all students. The support system helps students adjust to the university environment, achieve the intended learning outcomes and complete their studies successfully. The students are well-informed about the services available to them.

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

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

3.1 Information on the number of technical staff available for courses and practicums in all programs

Regarding the technical staff available for courses and practicums in the programs under review, the experts take note of the figures provided. They acknowledge the range of staff members available to support learning within the Chemistry Study Program, and the List of Staff in the Bachelor's program in Pharmacy Laboratories. The Master in Pharmaceutical Science Study Programme does not include practical sessions in educational laboratories,

unlike undergraduate pharmacy courses. Having received the requested information, the experts believe that there is no need to issue a recommendation in this regard.

3.1 (2) Maximum number of students (by academic level) per supervisor in <u>all programs</u>

The experts value the information provided regarding the Rector's decrees, which specify that the maximum workload for faculty members serving as supervisors for final projects is 18 (eighteen) students across all academic levels. However, it's still unclear what the maximum number of students by each academic level that a faculty member can supervise. Therefore, they retain their recommendation and suggest clearly stating in the University's regulation the maximum number of students per academic level - bachelor's, master's, and doctoral degrees - that can be supervised by staff.

3.2 Better integration of laboratory facilities for <u>Bachelor in Pharmacy and Master in Pharmaceutical Science study</u> programs

The assessment team appreciates Unhas' integrated laboratory system, which allows lecturers, researchers, and students to access all the laboratory equipment. The experts also value the plans to construct an integrated biopharmaceutical laboratory on the 2nd floor of the pharmacy faculty laboratory building, making it easier for students to move between the different facilities. However, the expert panel stands by its recommendation, as these plans refer to future developments, and no concrete steps have been taken yet.

3.2 (2) Learning rooms outside the library's operating time and service hours extension for <u>all programs.</u>

The expert group commend the University for recognising the benefits of extending the library's service hours to improve accessibility and academic support for students. They applaud the initiative to extend the operating hours from 16 to 18 and support the plans to gather user feedback. However, the experts stand by their recommendation, as they see room for further improvement, particularly in terms of learning spaces. Therefore, they suggest that the University provide students with access to learning rooms outside the library's operating hours and that the library extend its operating hours, including exploring the possibility of opening on weekends.

In summary, setting aside the aforementioned recommendation, the experts see this criterion as fulfilled.

4. Transparency and documentation

Criterion 4.1 Module descriptions

Evidence:

- Self-assessment report

- UNHAS Learning Management System (SIKOLA): https://sikola.unhas.ac.id/index.php?language=english
- Module Descriptions, all programs under review

Preliminary assessment and analysis of the experts:

The module descriptions for the programs under review were provided as appendices to the self-assessment report.

The experts confirm that the module descriptions contain information about the persons responsible for each module, the language, the teaching methods and workload, the credit points awarded, the intended learning outcomes, the examination requirements, the assessment forms and how the final score is calculated.

This module description files are stored in SIKOLA (http://sikola.unhas.ac.id), which ensures accessibility by the students. The module description is explained to class participants during the first week of lectures.

However, the experts observe that the module handbooks provided appear to be unavailable through the Faculty of Pharmacy's website. The experts hence emphasise that module descriptions including all required module information need to be published in full detail (e.g. in PDF format) to be accessible to all interested stakeholders. The experts ask the program coordinators to review and publish the module handbooks for the Bachelor in Pharmacy and Master in Pharmaceutical Science study programs accordingly.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

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

Preliminary assessment and analysis of the experts:

According to the information provided in the self-assessment report, students from the programs under review receive after graduation a Diploma Certificate, accompanied by a Transcript of Academic Records. The issuance of Diploma certificates is the university's authority and is signed by the Rector and the Dean of the corresponding Faculty.

Along with these documents, the graduates receive a Diploma Supplement, which is an official statement letter issued by the corresponding Faculty. It contains all necessary information about the degree program, including learning outcomes, acquired soft skills and student achievement in academic, co-curricular, extracurricular, or non-formal education.

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

Criterion 4.3 Relevant rules

Evidence:

- Self-assessment report
- University's website: https://www.unhas.ac.id/
- All relevant regulations as published on the university's website: https://dikmawa.unhas.ac.id/regulasi-akademik-2/

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 programs at the beginning of each semester.

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

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

4.1 Transparency and accessibility of Module description Bachelor in Pharmacy and Master in Pharmaceutical Science study programs

The experts confirm that the University has published the module handbooks for the Bachelor in Pharmacy and Master in Pharmaceutical Science study programs. Therefore, the documents are accessible to all interested stakeholders. The assessment team believe that there is no need to issue a recommendation in this regard.

Without further comments or relevant additional evidence from the University, the experts confirm their above preliminary assessment and see this criterion as fulfilled.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-assessment report
- Internal Quality Assurance System Policy Hasanuddin University
- LAMSAMA Accreditation Certificate, Bachelor in Chemistry study program
- LAM-PTKes Accreditation Certificate, Bachelor in Pharmacy study program
- Samples Student Satisfaction Survey Report, Learning Process Survey Report, Stakeholder Satisfaction Survey Report, Alumni User Survey Report; all programs under review
- Sample Tracer Study Report; all programs under review
- Discussions during the audit.

Preliminary assessment and analysis of the experts:

Universitas Hasanuddin and the Faculties (Faculty of Mathematics and Natural Science, and Faculty of Pharmacy) present a comprehensive system of internal and external QA. This system has been institutionalised in line with Government regulations and is periodically evaluated and updated. At the university level, Quality Assurance processes are led by two independent units, the Internal Quality Assurance and Educational Development (IQAED) and Internal Quality Assurance System (IQAS). IQAED monitors, evaluates, and provides feedback on academic aspects, while IQAS maintains and improves non-academic managerial standards as per regulatory frameworks like ISO 9001/2008. Responsibility for the quality assurance system at the faculty level lies with the Dean and the Faculty Internal Quality Assurance System (FIQAS).

Based on the UNHAS Quality Policy, the study programs undergo internal screening processes employing student surveys, lecturer performance assessments and data obtained from external stakeholders through tracer study and labour market observation.

According to the self-assessment report, FIQAS collects feedback from stakeholders (students, teaching staff, alumni, etc.) every semester to identify improvement areas. Through the student surveys, usually applied at week 14/15, students offer input on the teaching and learning process, lecturers' qualifications and competency, and teaching

facilities. Feedback is graded and analysed to determine overall satisfaction levels, with results reported to the Dean and Vice Dean of Students and Academic Affairs. If satisfaction levels are below the expected standard, course coordinators are asked to take measures to improve the course performance. The existence of such evaluation instruments was confirmed by the program coordinators, students and lecturers of the respective programs during the audit. The students explained that end-of-semester surveys are compulsory for them in order to access their final grades.

Students are of the opinion that their comments are valued and heard. A suggestion box is available so students can provide anonymous feedback to improve educational facilities, services, and processes. In addition, student representatives are involved in executive boards at the faculty and university levels and in the Board of Trustees, which makes decisions on regulations and strategic planning.

Apart from surveys, student performance is analysed by calculating mean scores as the semester concludes, providing insights into annual trends. Additionally, the achievement of intended learning outcomes (ILOs) is quantified through Intended Learning Outcome Achievements (ILOAs) derived from percentage scores linked to specific assessments.

Aside from such internal quality assurance mechanisms, recurring external quality assurance exercises at UNHAS relate to the legal obligation to submit every degree program for accreditation by a recognised agency in addition to the compulsory institutional accreditation. The ***Bachelor in Chemistry*** study program has been accredited with a grade of “Excellent” by the Independent Accreditation Institution for Natural Sciences and Formal Sciences (LAMSAMA). Both the ***Bachelor in Pharmacy*** and ***Master in Pharmaceutical Science*** study programs have been awarded grade A (Excellent) by the Indonesian Accreditation Agency for Higher Education in Health (LAM-PTKes).

During the audit, the program coordinators confirmed that alumni surveys are conducted after graduation to evaluate the learning process and the graduates' acceptance in the industry field at local or national institutions. Additionally, feedback is sought from industry representatives and other stakeholders.

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

Overall, the expert panel has a positive impression of the quality assurance system for the programs under review. Quality management is a high priority within the university, and various functioning structures have been created in this regard. They consider UNHAS and the Faculties to conduct a sufficient number of evaluations to survey the opinions of

students, stakeholders, and staff on a regular basis. The results of these processes are incorporated into the continuous development of the programs under review.

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

Without further comments or relevant additional evidence from the University, the experts confirm their above preliminary assessment and see this criterion as fulfilled.

D Additional Documents

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

E Comment of the Higher Education Institution (29.04.2024)

The institution provided the following additional documents:

1. Appendix 1.1.: Module handbook, Bachelor in Chemistry Study Program
2. Appendix 1.3.: Implementation of learning outside the study programme
3. Appendix 1.3 (2): The implementation of off-campus study programme
4. Appendix 1.3.2: New Regulation on Implementation of Bachelor Program in UNHAS
5. Appendix 1.3.2: Mapping of Study Materials, Courses, CPL and credits
6. Appendix 1.3.2 (2): New Regulation on Implementation of Magister Program in UNHAS
7. Appendix 1.6: Visiting Professors, Bachelor in Pharmacy Study Program
8. Appendix 1.6: Dean's decree No. 023 UN4.17 PK.01.00 2024 regarding the appointment of course lecturers and changes to the 2023 2024 final semester lecture schedule for the undergraduate pharmacy study program.
9. Appendix 2.1: Course Syllabus, Semester Learning Plan (SLP), Course Title: Drug Synthesis (Code: 20N02211202), Bachelor in Pharmaceutical Science Program
10. Exam Regulation Faculty of Mathematics and Natural Sciences
11. Exam Regulation Faculty of Pharmacy

About Marine Chemistry in the Bachelor's program in Chemistry curriculum:

12. Document stating the specific description of marine chemistry courses
13. Document on apprenticeship rules, procedures, monitoring, evaluation and examination.
14. Examples of apprenticeship reports

The institution also provided the following statement:

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

In the draft report, on **p.9, line 24**, it is stated that "the detailed description of marine chemistry is not represented. Given that, as stated in the self-assessment report, the focus of the Bachelor's program in Chemistry is on the exploration and utilisation of marine natural products, the experts recommend clearly describing the marine chemistry specialisation in the Module Handbook."

Response: The bachelor's degree in chemistry focuses not only on the research and usage of marine natural products but also on the utilization of natural resources originating on land and at sea. Courses that demonstrate the usage of marine natural products include Organic Chemistry for Natural Materials of the Maritime Continent and Chemistry of Marine Environmental Analysis. This course module provided marine chemistry-oriented study material on marine environmental analysis and natural product chemistry concerns that intersect with subjects related to marine resources and maritime continents (see module pages 82 and 125,

Appendix BCSP 1.1). The course is intended to give students the opportunities to obtain knowledge and abilities in investigating natural resources on land and at sea.

Criterion 1.3 (1) Curriculum

On **p.14, line 17**, the experts paid attention to the mapping of knowledge within each subject of the Bachelor's program in Chemistry and pointed out "this mapping is yet to be clearly reflected in each module, as there is no explicit description of the knowledge, skills, and competencies that students are expected to achieve. The experts emphasise the need to provide these descriptions and also ask the program coordinators to ensure that there is no content overlap between practical and theoretical courses."

Response: The subject of the Undergraduate Program in Chemistry is prepared based on the results of the evaluation by making an integrated mapping of study materials in knowledge and skills to ensure that no overlap occurs. The determination of study materials for the Chemistry study program FMIPA UNHAS was discussed in a meeting where various options were considered, namely the determination of study materials based on groups in the field of chemistry. The courses are derived from five distributed fields of science starting from semester two to semester eight as compulsory study program courses. Study materials are in accordance with the research concentration of the five fields of science derived in elective courses by taking into account the origin of the field of science. Study materials will also meet CPL to produce a predetermined graduate profile and will meet the competency categories given to students. The matrix showing the decline in study material and CPL is shown in the Appendix BCSP 1.3.2 (Table Mapping of Study Materials, Courses, CPL and credits).

Criterion 1.3 (2) Curriculum

On **p.15, line 2**, the expert team observed for the Master in Pharmaceutical Science Study Program "a lack of clarity in the distinction between compulsory and elective courses, which they consider important, particularly for prospective students. Therefore, the experts ask the University to clearly state in the information available which courses are mandatory and which are elective**."** Furthermore, on **line 8,** it is also noted "that the documentation does not outline the recommended courses for specific specialisations, leaving prospective students uninformed about the elective options that could support their thesis. The experts, hence, request the University to define elective courses for the specialisations in the documentation.

Response: The MPSP website (https://farmasi.unhas.ac.id/index.php/magister-s2/) describes the programs' curriculum structure. The table displays the names of courses, type of course (compulsory or elective), and the kind of course based on the program's specialization. The courses are categorized in a particular module such as "pharmacology, clinical and social pharmacy", herbal medicine, pharmaceutical analysis, pharmaceutical technology and pharmaceutical microbiology that can be selected by students to support their thesis. The other course categories are provided to support research capacity of the students such as academic integrity and research ethics, critical appraisal of literature and scientific writing and presentation.

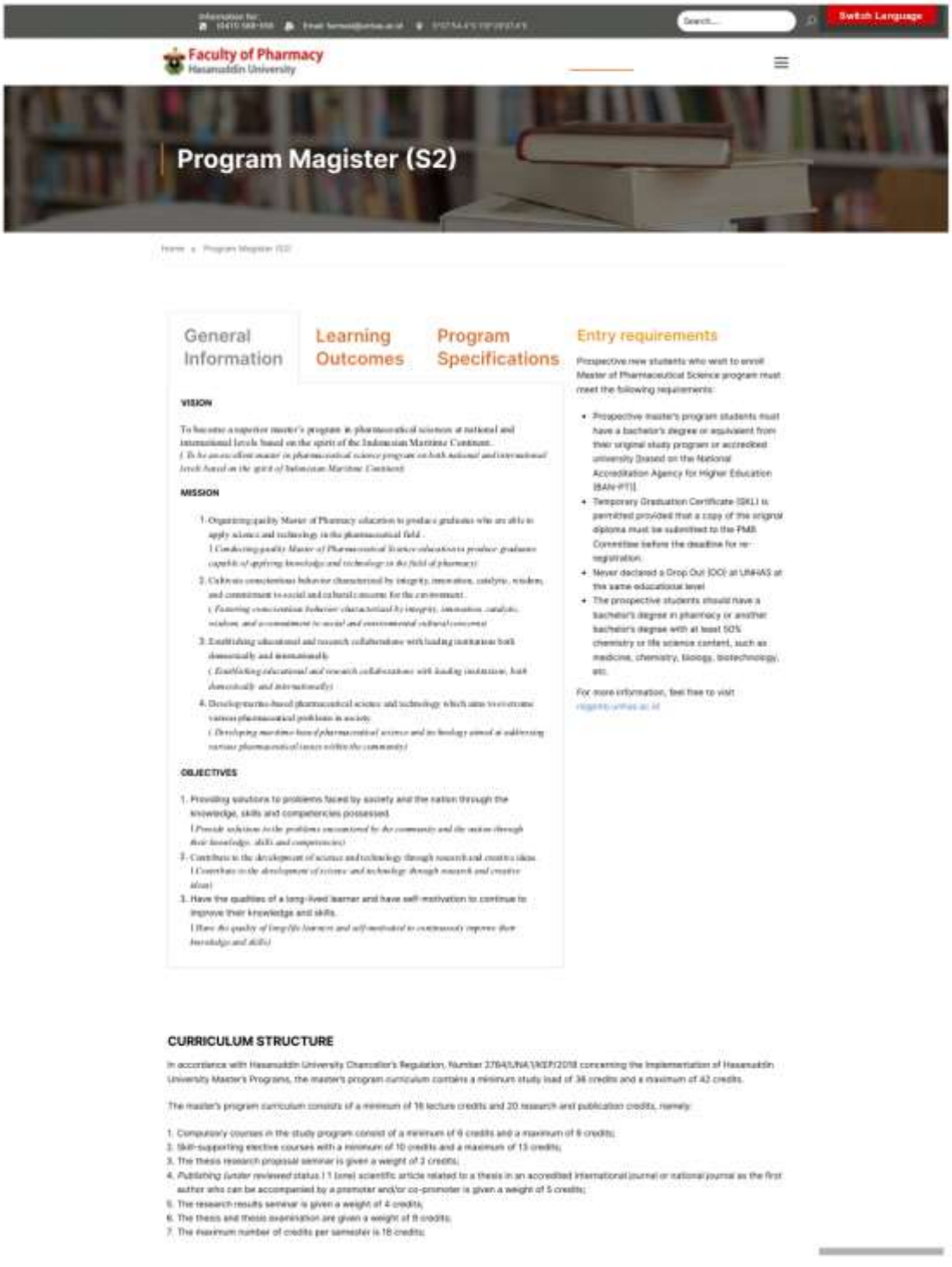


Figure 1. Display of Pharmacy website that shows curriculum structure of MPSP

Figure 2. Display of pharmacy website that shows the list of compulsory and elective courses in the MPSP curriculum.

Criterion 1.3 (3) Curriculum

On **p.12, line 31**, the experts recommended "the program coordinators of all three programs investigate the potential benefits of integrating courses from other faculties for further improvement of the curriculum."

Response:

1) BCSP

In 2023, the BCSP program reviewed its curriculum and took actions to align it with the 2018 curriculum. The implementation of curriculum alignment through the evaluation stage of the 2018 curriculum and the alignment of the 2023 curriculum through *Focus Group Discussion*

(FGD). This alignment is carried out in accordance with Presidential Regulation No. 8 of 2012 concerning the Indonesian National Qualifications Framework (KKNI) to be a reference in the preparation of learning outcomes of graduates from each level of education nationally. Curriculum alignment is carried out by carrying out *tracer studies, market signals* and *need analysis* from *stakeholders*. In accordance with the policy, the Ministry of Education and Culture enforces a new policy through the Merdeka Belajar-Kampus Merdeka (MBKM) program. The MBKM policy is a reference for curriculum alignment by compiling integrated learning outcomes in graduate competencies to be able to face increasingly complex life challenges in the 21st century.

2) BPSP

The coordinators of the study program have undertaken an investigation of the potential benefits of introducing courses from other faculties into the curriculum. To this end, BPSP has included lecturers from other faculties in the teaching teams for several courses (Table 1) to incorporate a range of fields of knowledge into the learning process.

Table 1. List of Current BPSP Courses with Integrated Teaching Team

No	Courses	Semester	Lecturers from Other Faculty
1	Basic Sciences in Pharmacy (C)	I	**Dr. Syahruddin Kasim, M.Si.** Department of Chemistry, Faculty of Mathematics and Natural Sciences
2	Statistics and Computing (E)	IV	**Siswanto, S.Si., M.Si.** Department of Mathematics, Faculty of Mathematics and Natural Sciences
3	Food and Beverage Technology (E)	V	**Februadi Bastian, STP., M.Si.** Department of Food Science and Technology, Faculty of Agriculture

C = Compulsory, E = Elective

Going forward, the university also facilitate the integrating courses between faculties. The Introductory courses with a similar learning context, such as organic chemistry, for example, will be taught in larger classes by joint teams from multiple study programs, thus encouraging cross-disciplinary learning. General courses, such as Religion education, civic education, Pancasila, Bahasa, Maritime Socio-cultural studies, Science-Technology Perspective, and English, are part of the curriculum for first-year students. These courses provide an opportunity for students from different study programs to attend lectures together, promoting integration. Additionally, these courses offer an outside study programme learning experience for students.

Furthermore, the Ministry of Education and Culture has established an independent campus program (MBKM) that allows students to take courses from other study programs. To ensure that the program runs in an orderly manner, UNHAS has issued several regulations related to the implementation of MBKM, including Regulation of the Rector of Hasanuddin University No. 5/UN4.1/2020 concerning the implementation of learning outside study programs in undergraduate programs at Hasanuddin University and Regulation of the Rector of Hasanuddin University No. 12/UN4.1/2023 concerning the implementation of off-campus study programs (see Appendix all programmes 1.3).

In addition, all study programs have received a mandate from UNHAS to develop a curriculum for 2023 (K23), which they will fully implement in 2023. This curriculum will include competency development courses, with 10 credits allocated for health and 20 credits for the humanities. This curriculum grants students the autonomy to enroll in courses that are not part of their designated study program, either on campus or off campus. In order to maximize students'

opportunities for integrating courses and enhancing their desired soft skills, the system should offer the greatest possible freedom.

Finally, the study program aims to improve the Bachelor's program in Pharmacy by increasing the participation of external (international) experts in teaching courses. This will provide students with exposure to a more diverse range of viewpoints and approaches. The program coordinators believe that these efforts will enable them to develop a well-rounded and comprehensive curriculum that will equip students with the necessary knowledge and skills to succeed in their careers.

3) MPSP

Although the MBKM program focuses more on undergraduate students, MPSP has also recruited professors from other faculties in the teaching teams for various courses (**Table 2**) to incorporate a variety of disciplines of expertise into the learning process.

Table 2. List of Current MPSP Courses with Integrated Teaching Team

No	Courses	Course Type	Lecturers from Other Faculty in Hasanuddin University
1	Philosophy of Pharmacy	Compulsory	**Prof. dr. Veny Hadju, Ph.D** Faculty of Public Health
2	Statistics and Reseach Metodology	Compulsory	**Dr. Ir. Beta Putranto, M.Sc** Faculty of Forestry
3	Pharmacoepidemiology and Pharmacoeconomics	Elective	**Prof. Dr. drg. A. Arsunan Arsin, M.Kes** Faculty of Public Health
4	Pharmacy Management	Elective	**Dr. dr. A. Kurnia Bintang, Sp.S., MARS** Faculty of Medicine
5	Integrative Medicine	Elective	**Dr. dr. Anna Huzaimah, M.Kes** Faculty of Public Health

Criterion 1.3 (4) Curriculum

On **p.16, line 5**, the expert team identified for the Bachelor's program in Chemistry, "potential for enhanced collaboration with industry partners for more opportunities for students. Additionally, they see room for improvement in the program in the number of students engaging in internships at international companies."

Response: Student exchange programs or internships have been carried out in the Department of Chemistry using regulations from the University Level (https://dikmawa.unhas.ac.id/wp-content/uploads/2023/08/dokumen-1625468352-PASS-PANDUAN-FASILITASI-PEMBELAJARAN-DI-LUAR-PROGRAM-STUDI-25-8-20-ttd.pdf). Students of the chemistry undergraduate program have the opportunity to take part in internship programs in industries or institutions at the international level such as the 2024 Asian Undergraduates Symposium (AUS) program and International Summer School through a selection process.

Criterion 1.3 (5) Curriculum

On **p.17, line 10**, the assessment team noted that "Drawing from the evidence presented and the discussions held during the audit, they identify a need for the Bachelor's program in Chemistry to strengthen its internationalisation efforts and further increase student mobility."

Response: The Bachelor of Chemistry program strengthens internships or exchanges at national and international levels. Chemistry students participate in these activities in accordance with the regulations provided by each institution that will accept chemistry students. In 2024, there are already chemistry students who have successfully / passed the selection to take part in programs at the international level with implementation in June-July 2024.

Criterion 1.3 (6) Curriculum

Furthermore, **on p.17, line 13**, the experts stated that "it would be important for students in the Bachelor's and Master's programs to have an English proficiency certificate before they graduate."

Response: UNHAS Rector's Decree No. 30/UN4.1/2023 concerning the Implementation of Masters Programs at UNHAS (Articles 13 and 14) has mandated that prospective master's program students must submit an English proficiency test certificate with a minimum score of 450 on the TOEFL Test or 4.0 on the IELTS or pass an English language test conducted by a university or other institution which UNHAS recognizes as part of the admission administration requirements (see Appendix all programmes 1.3.2).

For bachelor program, the new regulations regarding the implementation of undergraduate study programs (Rector's Decree No. 29/UN4.1/2023 concerning the Implementation of Undergraduate Programs at UNHAS, Article 6 and 8) has regulated the new requirements for an English proficiency certificate as a condition for accepting new students.

The English proficiency requirements imposed vary depending on the level of the study program, which are described as follows:

1. Students who apply for accelerated (fast track) bachelor to master degree class: TOEFL 450 or IELTS 5.0 or EPT 540 from the UNHAS Language Service Center or other recognized institutions
2. Joint or double degree students who apply for international class managed by overseas partner universities: TOEFL minimum 500 or IELTS/TOEIC score by partner university requirements.

The English proficiency certificate requirement has yet to be applied to regular bachelor programs, but UNHAS has made various efforts to identify and map students' English abilities. In 2023, UNHAS launched an English Diagnostic Test program for students, which allows students to take an English language test free of charge. The University then maps the test results obtained, and then several follow-up actions are carried out based on the test result scores, including:

1. Students with a TOEFL score > 500 are allowed to take part in English Academic Training in preparation for IISMA and preparation for further studies at foreign universities.
2. Students with a TOEFL score < 450 can take part in an online English course via the FlowSpeak platform. Currently, UNHAS has provided 1000 accounts, and this number of accounts will be increased in the future.

In addition, the policy regarding the English diagnostic test for all students will be carried out as part of the welcoming program—Acceptance and Character Developments for New Students (P2KMB)—for 2024 student batch. In the future, the University will discuss the program's requirements for an English proficiency test certificate to ensure their English proficiency levels meet standard requirements without affecting their study period.

Furthermore, the EDT program ensures that English scores are also monitored by each study program, including the Bachelor in Chemistry Study programme, which administers biannual short courses and assessments. The Bachelor in Pharmacy Study Programme offers student activity units the opportunity to organize events that promote and enhance students' English language proficiency. Additionally, the Pharmacy Faculty regularly holds "English academic meetings" that are attended by lecturers, researchers, and students.

Criterion 1.4 Admission requirements

On **p.20, line 6** of the draft report, the assessment team emphasized "the need to clearly state the admission requirements for the Master's program, making them publicly available to all interested stakeholders. This particularly concerns the requirements regarding the applicant's previous education background (i.e., whether any matriculation subjects were needed)".

Response: Pharmacy's website (https://farmasi.unhas.ac.id/index.php/magister-s2/) clearly states that the prospective students who wish to enroll MPSP should have a bachelor's degree in pharmacy or another bachelor's degree with at least 50% chemistry or life science content, such as medicine, chemistry, biology, biotechnology, etc. Similarly, the university's admissions website (https://regpmb.unhas.ac.id/) also specially declares specific requirement for MPSP as mentioned above.

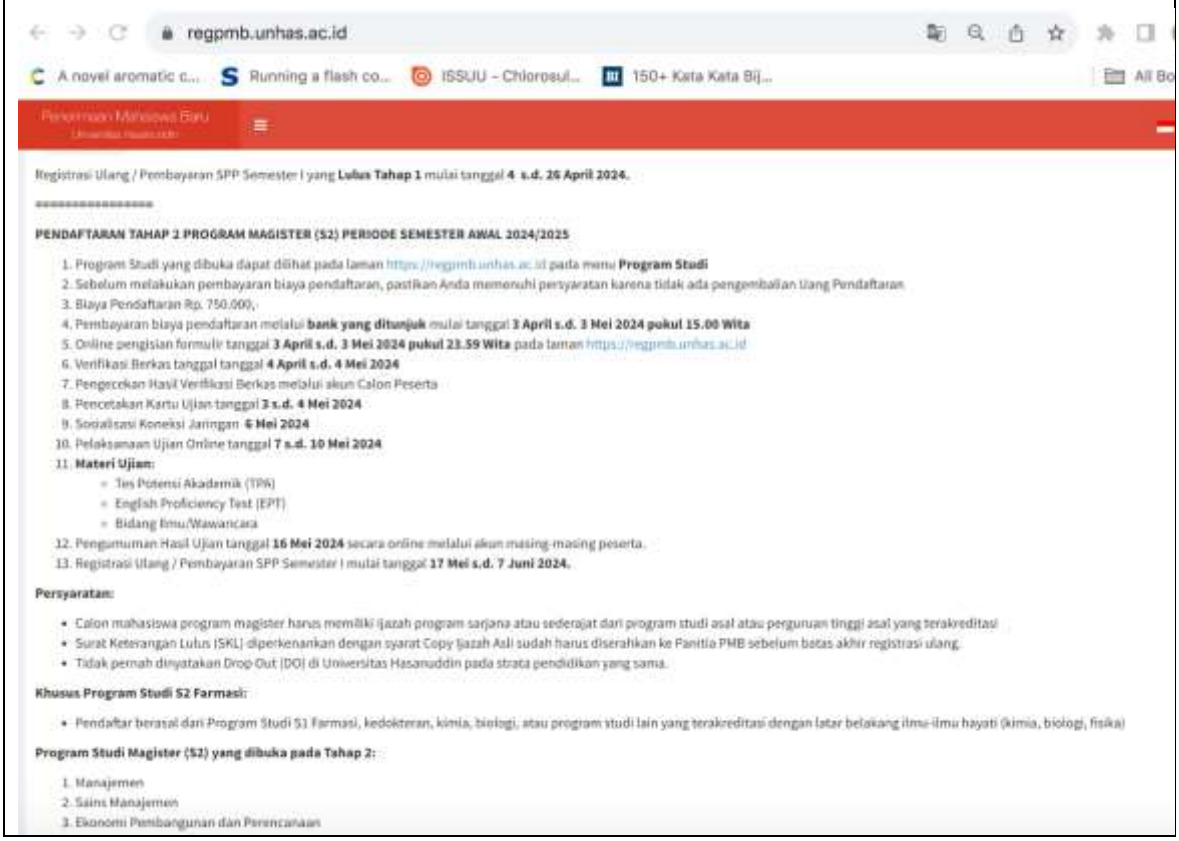


Figure 3. The university's admissions website that shows specific requirements for prospective MPSP students

Criterion 1.6 Didactic and Teaching Methodology

On **p.18, line 30**, the experts stated that "based on the discussions during the audit, the experts see the need for increased participation of external (international) experts in teaching courses within the Bachelor's program in Pharmacy."

Response: In order to foster academic excellence and elevate UNHAS's status as a World-class University, the Faculty of Pharmacy has implemented a program to incorporate foreign lecturers into its learning activities. Notably, in the ongoing semester of 2023/2024, Dr.rer.biol.hum. Lutz Vogel from Dessau Rosslau has been participating as an instructor for the Pharmacotherapy I course for third-year bachelor students and Pharmacology I for second-year bachelor students (see Appendix BPSP 1.6).

Figure 5. Evidence of the implementation of the Pharmacotherapy I lecture by Dr. Lutz Vogel

By increasing the number of foreign lecturers, the Faculty of Pharmacy is committed to furthering its efforts to improve the quality of education. Furthermore, the faculty has arranged the arrival of other foreign lecturers through the DAAD Gastdozentprogramm grant in October 2024 and SES funding in August 2024.

In 2023, the UNHAS Faculty of Pharmacy also invited several foreign lecturers to give guest lectures to pharmacy students as part of the Faculty of Pharmacy yearly program. Public lectures were conducted online (3 activities) and offline (5 activities).

Criterion 1.6 (2) Didactic and Teaching Methodology

Moreover, on **p.24, line 01** of the report, the assessment team identified for the Bachelor's program in Chemistry "opportunities for improvement in expanding students' exposure to relevant external knowledge and experience, as specified under Criterion 1.3."

Response: Increased participation of external experts has been carried out in the Bachelor of Chemistry program with several international partners, including The Halal Science Centre Chulalongkorn University and Universiti Teknologi Malaysia. Some of the lecturers gave public lectures related to the field of chemistry, including Bimo Ario Tejo, PhD (Universiti Putra Malaysia) presenting the topic of biochemistry, Assoc. Prof. Dr. Winai Dahlan (The Halal Science Centre Chulalongkorn University) and Dr. Anat Denyinghot presenting the topic of forensic food ingredients, Assoc.Prof.Dr. Zainul Akmar Zakaria (Bioprocess Eng. Department, FKT), Assoc. Prof.

Dr. Muhammad Abbas Ahmad Zaini (Bioprocess Eng. Department, FKT), Dr. Mohd. Firdaus Abdul Wahab (Bioscince Department, FS).

Figure 4. Documentation of International Practitioner Lecturer Activities

Criterion 2 Exams: System, concept and organization

On **p.26, line 21** of the draft report, it is noted that "following their review of examination-related documentation, as well as their analysis of the information gathered during the on-site visit, the experts see an opportunity to develop and clarify the procedures for implementing resit and remedial examinations. They specifically ask the University to establish clear regulations regarding exam resits as well as define the maximum grade allowable for students taking remedial exams."

Response: Currently, UNHAS has policies (Rector's Decree No. 29/UN4.1/2023, Chapter XIII, article 41 and 42 on the Implementation of Undergraduate Programs at UNHAS) and (Rector's Decree No. 30/UN4.1/2023 on the Implementation of Master's Programs at UNHAS, chapter XIII, article 47) regarding assessment, remedial, and evaluation of learning outcomes. Additionally, each faculty also regulates the details of resit and remedial procedures in the form of dean's regulations (regulations of the Faculty of Mathematics and Natural Sciences (No. 6609/UN4.11/PK.03.01/2019) and Pharmacy (No. 526/UN4 .17/KEP/2022) in chapters 6 (resit examination) and 9 (Test score). Regarding several technical implementation mechanisms, such as whether students have to repeat all courses in the resit process or just retake the exams, these

are referred back to the respective course cordinator and can be conducted at any stage of learning or at the end of the semester.

Criterion 2 (2) Exams: System, concept and organization

On **p.27, line 32**, the expert team also highlighted that "they did not see enough evidence that the marking criteria is written down before the course starts or that is publically available with clear objective criteria. The expert team hence asks the University to take the necessary steps to address this matter."

Response: The marking criteria for each course are outlined in the Semester Learning Plan (SLP). Before the start of the academic system, a meeting is held among the faculty members to discuss the evaluation of the previous academic system and the preparation of the upcoming semester's curriculum. During this meeting, various technical aspects, updates to the material, assessment methods, and assessment criteria are discussed and agreed upon, which are then incorporated into the Semester Learning Plan (SLP).

The Semester Learning Plan (SLP) contains the learning plan for one semester, which is prepared as a guide for students in carrying out their academic activities during that semester to achieve the predetermined learning outcomes. The SLP includes several pieces of information such as:

- Program name, course name and code, semester, credit hours (SKS), and name of the instructor.
- Learning outcomes assigned to the course.
- Planned final competencies at each learning stage.
- Study materials related to the targeted competencies.
- Teaching methods.
- Allocated time.
- Description of tasks to be completed by students during the semester.
- Criteria, indicators, and weighting of assessments.
- List of references used.

Table 1. Example of assessment methods

Assessment Methods	Assessment Weight (%)
Group Presentation	10
Roleplay and Simulation	10
Case Based Learning: Analytic Paper	10
Case Based Learning: Poster Presentation	20
Case Based Learning: Presentation	20
Mid Exam	15
Final Exam	15
Total	**100**

The lecturer will publish SLP documents on each course page at UNHAS academic learning platform (SIKOLA) and can be easily accessed by the students programming the course. In the first meeting of the class, the lecturer will disseminate the lecture contract, including: learning activities, assessment methods, marking criteria, and other important information contained in SLP. Besides that, lecturers also prepare structured assignment plans containing details regarding course assignments, weights and assessment methods, limits and procedures for submitting assignments and assessment rubrics. This document is also included in SIKOLA in the student

assignment menu or the learning flow. Example of SLP documents publically published in SIKOLA is provided in Appendix all programmes 2.1.

Criterion 3.1 HR Resources, Staff Development and Student Support

On **p.29, line 16** of the report, the expert panel noted that "upon reviewing the documentation provided and gathering feedback from stakeholders during the on-site visit, it is unclear to the experts whether there are sufficient technical staff to meet the needs of the programs. Therefore, the experts request that the coordinators of all programs provide information on the number of technical staff available for courses and practicums."

Response:

1) BCSP

The Chemistry Program has 21 lecturers (80.77%) who have S3 qualifications which will increase because currently there are 3 people who are continuing their studies in the doctoral program. Lecturers who have had educator certification are 23 people (88.46%), with the distribution of functional positions respectively: 4 professors (15.38%), 10 Associate Professors (38.46%), 8 Lecturers (30.77%) and 4 expert assistants (15.38%). The implementation of learning in the Chemistry Study Program is supported by 7 Educational laboratory administrators (PLP), 2 administrative staff and a total of 50 faculty staff who assist in administration, academic, finance, personnel, general, and equipment.

2) BPSP and MPSP

BPSP has eight laboratories that cater to a wide range of academic and research activities. These state-of-the-art laboratories have been designed to support various learning activities, such as lectures and practicums, as well as research activities during every semester. The eight laboratories are as follows: (1) Pharmaceutical Chemistry, (2) Clinical Pharmacy, (3) Biopharmaceutics, (4) Pharmacology-Toxicology, (5) Pharmaceutical Technology, (6) Pharmaceutical Microbiology, (7) Pharmacognosy, and (8) Phytochemistry. The placement of staff in laboratories is carried out based on the scientific background of the person. The distribution of staff in each laboratory is described in Table 3.

Table 3. List of Staff in BPSP Laboratories

No	Laboratory	Active Staff	Courses	Practicum
1	Pharmaceutical Technology Laboratory	Academic Staff: 8 Lab technician: 1	**Term 1** 1. Physical Pharmacy 2. Liquid and Semisolid Pharmaceutical Dosage Forms **Term 2** 1. Basic Pharmaceutics 2. Solid Pharmaceutical Dosage Forms 3. Sterile Pharmaceutical Dosage Forms 4. Cosmetology	**Term 1** 1. Practical Physical Pharmacy 2. Practical Liquid and Semisolid Pharmaceutical Dosage Forms **Term 2** 1. Practical Basic Pharmaceutics 2. Practical Solid Pharmaceutical Dosage Forms 3. Practical Sterile Pharmaceutical Dosage Forms

2	Pharmaceutical Microbiology Laboratory	Academic Staff: 4 Lab technician: 1	**Term 1** 1. Microbiological Analysis **Term 2** 1. Microbiology and Parasitology	**Term 1** 1. Practical Microbiological Analysis **Term 2** 1. Practical Microbiology and Parasitology
3	Pharmacognosy Laboratory	Academic Staff: 7 Lab technician: 1	**Term 1** 1. Pharmaceutical Botany 2. Pharmacognosy Analysis **Term 2** 1. Pharmacognosy 2. Traditional Medicine 3. Marine Pharmacognosy	**Term 1** 1. Practical Pharmaceutical Botany **Term 2** 1. Practical Pharmacognosy
4	Phytochemistry Laboratory	Academic Staff: 7 Lab technician: 1	**Term 1** 1. Bioactive Compound Isolation 2. Plant Tissue Culture 3. Phytomedicine **Term 2** 1. Phytochemistry	**Term 1** 1. Practical Bioactive Compound Isolation **Term 2** 2. Practical Phytochemistry
5	Pharmaceutical Chemistry Laboratory	Academic Staff: 6 Lab technician: 1	**Term 1** 1. Organic Chemistry 2. Basic Drug Synthesis 3. Pharmaceutical Analysis **Term 2** 1. Analytical Chemistry 2. Food and Pharmaceutical Supply Analysis 3. Medicinal Chemistry 4. Analytical Method Development and Validation 5. Bioanalysis	**Term 1** 1. Practical Basic Drug Synthesis 2. Practical Pharmaceutical Analysis **Term 2** 1. Practical Analytical Chemistry 2. Practical Bioanalysis
6	Clinical Pharmacy Laboratory	Academic Staff: 4 Lab technician: 1	**Term 1** 1. Biochemistry **Term 2** 1. Clinical Biochemistry 2. Basic Clincal Pharmacy	**Term 1** 1. Practical Biochemistry **Term 2** 1. Practical Clinical Biochemistry

7	Biopharmaceutics Laboratory	Academic Staff: 5 Lab technician: 1	**Term 1** 1. Pharmacokinetics 2. Immunology **Term 2** 1. Biopharmaceutics 2. Toxicology	**Term 1** 1. Practical Pharmacokinetics **Term 2** 1. N/A
8	Pharmacology-Toxicology Laboratory	Academic Staff: 5 Lab technician: 1	**Term 1** 1. Human Anatomy and Physiology 2. Pharmacology II 3. Pharmacotherapy II **Term 2** 1. Pharmacology I 2. Pharmacotherapy I	**Term 1** 1. Practical Human Anatomy and Physiology **Term 2** 1. Practical Pharmacology I

The Master in Pharmaceutical Science Study Programme does not include practical sessions in educational laboratories, unlike undergraduate pharmacy courses. Nevertheless, laboratory facilities are primarily utilized **for doing thesis research**.

Criterion 3.1 (2) HR Resources, Staff Development and Student Support

On **p.30, line 15,** the assessment team recommended that "the University's regulation clearly state the maximum number of students per academic level - bachelor's, master's, and doctoral degrees - that can be supervised by staff."

Response: The number of students supervised by teaching staff is regulated in Rector's Decree No. 29/UN4.1/2023 concerning the Implementation of Undergraduate Programs at UNHAS (Article 34) and Rector's Decree No. 30/UN4.1/2023 concerning the Implementation of Masters Programs at UNHAS (Article 38), and Rector's Decree No. 31/UN4.1/2023 concerning the Implementation of Doctoral Programs at UNHAS (Article 37). These decrees stipulate that the total workload for student supervision at all levels should not exceed 18 students per staff member. To ensure that no staff member is overburdened, each faculty member provide a matrix that delineates the number of supervision for each lecturer and their progress. This matrix determines the supervision quota for each lecturer. Especially in the undergraduate pharmacy study program, there is an online system (Pharmaceutical Information System/SIFA, https://sifa.unhas.ac.id/login) that regulates the matrix of the number of students supervised by each lecturer, which is monitored by the head of the laboratory before approving the name of the supervisor proposed by the student.

Criterion 3.2 Funds and equipment

On **p.34, line 5,** it is stated for the Bachelor in Pharmacy and Master in Pharmaceutical Science study programs that "the laboratory facilities could be better integrated/connected into the Faculty building to avoid students having to go to other premises to test their samples after the preparation step. They also suggest optimising the lab space for students by sharing laboratory space between different units to accommodate multiple practical sessions in the rooms."

Response: To support student research, the Faculty of Pharmacy provides an integrated research laboratory called Biofarmaka, located separately from the main building. However, there are plans to construct an integrated biopharmaceutical laboratory on the 2nd floor of the pharmacy faculty laboratory building, which will make it easier for students to move between the different facilities. The project is expected to be completed by 2025 (see Appendices BPSP/MPSP 3.2). In

addition, UNHAS has an integrated laboratory system (https://pyapp.unhas.ac.id/laboratorium/dashboard/) that allows UNHAS lecturers, researchers, and students to access all the laboratory equipment.

Criterion 3.2 (2) Funds and equipment

On **p.34, line 30**, the expert panel noted that "the current operating time seems to not fully accommodate their need for learning or discussion space outside of teaching hours. Therefore, experts suggest that the university provide students access to learning rooms outside the library's operating time. They also recommend that the library consider extending their service hours, including weekends."

Response: Extending service hours at the library, including weekends, is a very positive step to enhance accessibility and academic support for students. In response to the results of a previous student survey on additional operating hours, the library has raised its operating hours from 16:00 to 18:00. However, in the future, the library unit will conduct another survey to determine whether additional operational hours beyond 18:00 and weekend hours are required.

Criterion 4.1 Module descriptions

On **p.36, line 24,** it came to the experts' attention "that the module handbooks provided appear to be unavailable through the Faculty of Pharmacy's website. The experts hence emphasise that module descriptions including all required module information need to be published in full detail (e.g. in PDF format) to be accessible to all interested stakeholders. The experts ask the program coordinators to review and publish the module handbooks for the Bachelor in Pharmacy and Master in Pharmaceutical Science study programs accordingly."

Response: Module handbooks for the BPSP and MPSP are availabe physically and shown to student in the first week of lectures. Module handbooks are also availabe online on the pharmacy's website (https://farmasi.unhas.ac.id/). Module descriptions, including all required information, can be accessed at https://farmasi.unhas.ac.id/index.php/sarjana-s1/ for BPSP and at https://farmasi.unhas.ac.id/index.php/magister-s2/ for MPSP, where details of each course can be easily read by interested stakeholder (i.e., students).

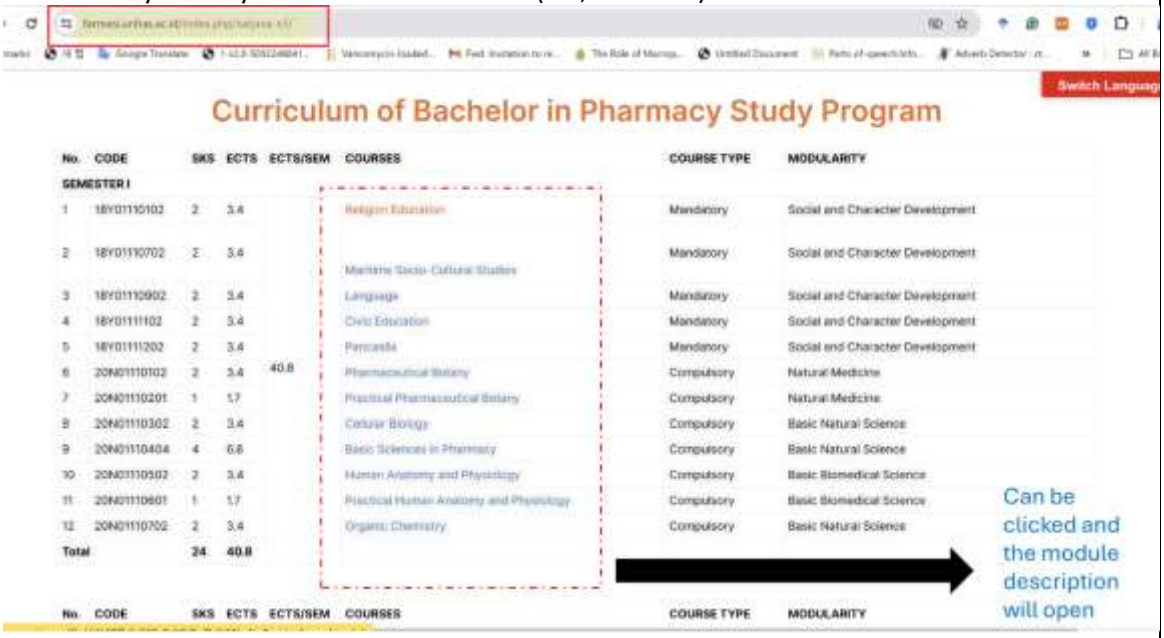


Figure 6 . Display of the UNHAS pharmacy website, where the module description for BPSP is available and can be accessed.

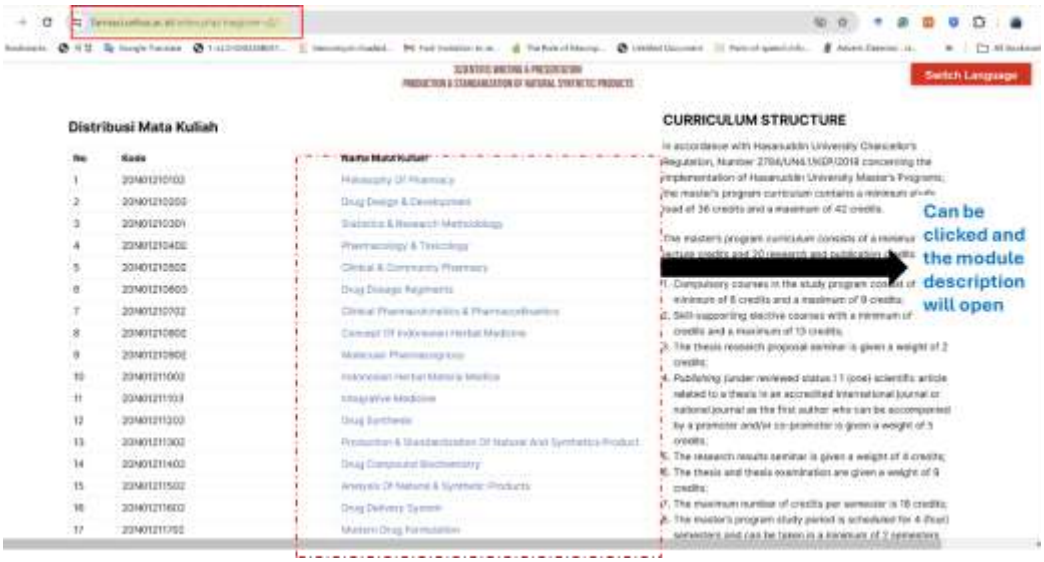


Figure 7 . Display of the UNHAS pharmacy website, where the module description for MPSP is available and can be accessed.

F Summary: Expert recommendations (27.05.2024)

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

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Bachelor Chemistry	With requirements for one year	-	30.09.2029
Bachelor Pharmacy	With requirements for one year	-	30.09.2029
Master Pharmaceutical Science	With requirements for one year	-	30.09.2029

Requirements

For all degree programs

A 1. (ASIIN 2) Ensure that marking criteria are written down before the course starts and that they are publically available with clear objective criteria.

For the Bachelor Chemistry

A 2. (ASIIN 1.3) Ensure that practical and theoretical courses do not overlap in content.

Recommendations:

For all degree programs

E 1. (ASIIN 1.3) It is recommended that the potential benefits of courses from other faculties be investigated for curriculum improvement.

E 2. (ASIIN 3.2) It is recommended that students have access to learning rooms outside the library's operating hours

E 3. (ASIIN 3.2) It is recommended that the library extend its operating hours, including exploring the possibility of opening on weekends.

E 4. (ASIIN 3.1) It is recommended to clearly state in the University's regulation the maximum number of students per academic level - bachelor's, master's, and doctoral degrees - that can be supervised by staff.

For the Bachelors Chemistry and Pharmacy

E 5. (ASIIN 1.3) It is recommended that students in the Bachelor's programs have an English proficiency certificate before they graduate, in line with the university's internationalisation goals.

For the Bachelor Chemistry

E 6. (ASIIN 1.3) It is recommended to strengthen the collaboration with industry partners.

E 7. (ASIIN 1.3) It is recommended to strengthen internationalisation efforts and further increase student mobility.

E 8. (ASIIN 1.3) It is recommended to increase the number of students engaging in internships at international companies.

For the Bachelor Pharmacy

E 9. (ASIIN 1.3) It is recommended to increase the involvement of external (international) experts in teaching courses.

For the Master Pharmaceutical Science

E 10. (ASIIN 1.3) It is recommended that the program seek more user-friendly options to present relevant information to prospective students.

For the Master Pharmaceutical Science and the Bachelor Pharmacy

E 11. (ASIIN 3.2) It is recommended that the laboratory facilities are better integrated/connected into the Faculty building to avoid students having to go to other premises to test their samples after the preparation step.

E 12. (ASIIN 3.2) It is recommended to optimise the lab space for students by sharing laboratory space between different units to accommodate multiple practical sessions in the rooms.

G Comment of the Technical Committee 09 – Chemistry, Pharmacy (03.06.2024)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee sees that the expert group suggest imposing two requirements: firstly, that the assessment criteria for the individual examinations are not clearly communicated to the students at the beginning of the semester and secondly, that content overlaps between the modules should be minimised as far as possible. In addition, twelve recommendations are to be made, for example regarding the availability of study rooms, library opening hours, English language skills, cooperation with companies, academic mobility and the use of laboratories. The Technical Committee agrees with the first requirement but requires further clarification concerning the problem that led to requirement A2. For this reason, contact will be established with the experts involved. The feedback will then be fed into the meeting of the Accreditation Commission.

Otherwise, the expert committee follows the proposed requirements and recommendations.

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

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Bachelor Chemistry	With requirements for one year	-	30.09.2029
Bachelor Pharmacy	With requirements for one year	-	30.09.2029
Master Pharmaceutical Science	With requirements for one year	-	30.09.2029

Requirements

For all degree programs

A 1. (ASIIN 2) Ensure that marking criteria are written down before the course starts and that they are publically available with clear objective criteria.

For the Bachelor Chemistry

A 2. (ASIIN 1.3) Ensure that practical and theoretical courses do not overlap in content.

Recommendations:

For all degree programs

E 1. (ASIIN 1.3) It is recommended that the potential benefits of courses from other faculties be investigated for curriculum improvement.

E 2. (ASIIN 3.2) It is recommended that students have access to learning rooms outside the library's operating hours

E 3. (ASIIN 3.2) It is recommended that the library extend its operating hours, including exploring the possibility of opening on weekends.

E 4. (ASIIN 3.1) It is recommended to clearly state in the University's regulation the maximum number of students per academic level - bachelor's, master's, and doctoral degrees - that can be supervised by staff.

For the Bachelors Chemistry and Pharmacy

E 5. (ASIIN 1.3) It is recommended that students in the Bachelor's programs have an English proficiency certificate before they graduate, in line with the university's internationalisation goals.

For the Bachelor Chemistry

E 6. (ASIIN 1.3) It is recommended to strengthen the collaboration with industry partners.

E 7. (ASIIN 1.3) It is recommended to strengthen internationalisation efforts and further increase student mobility.

E 8. (ASIIN 1.3) It is recommended to increase the number of students engaging in internships at international companies.

For the Bachelor Pharmacy

E 9. (ASIIN 1.3) It is recommended to increase the involvement of external (international) experts in teaching courses.

For the Master Pharmaceutical Science

E 10. (ASIIN 1.3) It is recommended that the program seek more user-friendly options to present relevant information to prospective students.

For the Master Pharmaceutical Science and the Bachelor Pharmacy

E 11. (ASIIN 3.2) It is recommended that the laboratory facilities are better integrated/connected into the Faculty building to avoid students having to go to other premises to test their samples after the preparation step.

E 12. (ASIIN 3.2) It is recommended to optimise the lab space for students by sharing laboratory space between different units to accommodate multiple practical sessions in the rooms.

H Decision of the Accreditation Commission (28.06.2024)

Assessment and analysis for the award of the ASIIN seal:

The Accreditation Commission discusses the procedure and follows the assessment of the experts and the Technical Committee. However, to ensure clarity, the Accreditation Commission suggests rephrasing requirement A1. as displayed below.

The Accreditation Commission also takes into account the additional information and revised wording of requirement A2 presented by the experts in response to the concerns raised by the Technical Committee. The Accreditation Commission agrees with the experts that unintended overlaps in the course content should be avoided but believes that rather than making it a requirement for the Bachelor Chemistry, it should be issued as a recommendation.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Bachelor Chemistry	With requirements for one year	-	30.09.2029
Bachelor Pharmacy	With requirements for one year	-	30.09.2029
Master Pharmaceutical Science	With requirements for one year	-	30.09.2029

Requirements

For all degree programs

A 1. (ASIIN 2) Ensure that examination modalities, including the grading criteria are published transparently before the start of each course.

Recommendations:

For all degree programs

E 1. (ASIIN 1.3) It is recommended that the potential benefits of courses from other faculties be investigated for curriculum improvement.

E 2. (ASIIN 3.2) It is recommended that students have access to learning rooms outside the library's operating hours

E 3. (ASIIN 3.2) It is recommended that the library extend its operating hours, including exploring the possibility of opening on weekends.

E 4. (ASIIN 3.1) It is recommended to clearly state in the University's regulation the maximum number of students per academic level - bachelor's, master's, and doctoral degrees - that can be supervised by staff.

For the Bachelors Chemistry and Pharmacy

E 5. (ASIIN 1.3) It is recommended that students in the Bachelor's programs have an English proficiency certificate before they graduate, in line with the university's internationalisation goals.

For the Bachelor Chemistry

E 6. (ASIIN 1.3) It is recommended to strengthen the collaboration with industry partners.

E 7. (ASIIN 1.3) It is recommended to strengthen internationalisation efforts and further increase student mobility.

E 8. (ASIIN 1.3) It is recommended to increase the number of students engaging in internships at international companies.

E 9. (ASIIN 1.3) It is recommended to map the knowledge, skills and competences students are expected to achieve in order to avoid unintended overlaps in the content of the courses.

For the Bachelor Pharmacy

E 10. (ASIIN 1.3) It is recommended to increase the involvement of external (international) experts in teaching courses.

For the Master Pharmaceutical Science

E 11. (ASIIN 1.3) It is recommended that the program seek more user-friendly options to present relevant information to prospective students.

For the Master Pharmaceutical Science and the Bachelor Pharmacy

E 12. (ASIIN 3.2) It is recommended that the laboratory facilities are better integrated/connected into the Faculty building to avoid students having to go to other premises to test their samples after the preparation step.

E 13. (ASIIN 3.2) It is recommended to optimise the lab space for students by sharing laboratory space between different units to accommodate multiple practical sessions in the rooms.

Appendix: Program Intended Learning Outcomes and Curricula

According to the self-assessment report and the provided "Curriculum Documents", the following learning outcomes/intended qualifications profile shall be achieved:

Bachelor's program in Chemistry

INTENDED LEARNING OUTCOMES (ILOs)		
Attitude	**ILO1**	Demonstrate adequate knowledge and understanding of professional ethics, social responsibility, environmental impact and sustainability
Knowledge/Understanding	**ILO2**	Have adequate skills in scientific writing and reports, data presentation, and literature references using ICT (Information and Communication Technology)
	ILO3	Have communication skills, including written and oral communication with a variety of audiences
	ILO4	Demonstrate critical and analytical thinking skills to solve a number of problems related to chemistry
Skills	**ILO5**	Demonstrate knowledge and understanding of important facts, concepts, principles and theories related to the subject of chemistry
	ILO6	Demonstrate a systematic understanding of the basic principles of physical-biochemistry to solve theoretical and practical problems related to the field of chemistry
	ILO7	Demonstrate an understanding of the qualitative and quantitative aspects of chemical measurement
	ILO8	Demonstrate knowledge and understanding of problems in chemistry that overlap with other related subjects especially related to marine resources
Competence	**ILO9**	Demonstrate safety skills in handling chemicals by considering their physical and chemical properties including the specific hazards associated with their use and the ability to carry out risk assessments
	ILO10	Demonstrate laboratory skills to carry out identification, separation, characterization, analysis, and synthesis of chemicals in relation to inorganic, organic, and biochemical systems
	ILO11	Demonstrate practical skills in the operation of standard chemical instrumentation

The following curriculum is presented for the ***Bachelor's program in Chemistry***:

No.	Code	SKS	SCTS	ECTS/SEM	Course
SEMESTER I					
1	18Y01110102	2	3.4	37.4	Religion Education
2	18Y01110702	2	3.4		Maritime Socio Cultural
3	18Y01110902	2	3.4		Bahasa
4	18Y01110203	3	5.1		Basic Math I
5	18Y01110503	3	5.1		Basic Physics
6	18Y01110703	3	5.1		Basic Chemistry I
7	18Y02111103	3	5.1		Basic biology

8	18Y01111302	2	3.4		Pancasila
9	18H00111402	2	3.4		Entrepreneurship
	Total	**22**	**37.4**		
SEMESTER II					
1	18Y01110102	2	3.4	40.8	Science and technology
2	18Y01111002	2	3.4		English
3	18Y01111102	2	3.4		Civic
4	18Y02110303	3	5.1		Basic Math II
5	18Y02110903	3	5.1		Basic Chemistry II
6	18H03110103	3	5.1		Basic Inorganic Chemistry
7	18H03112503	3	5.1		Basic Aspects of Chemical Research
8	18H03113002	2	3.4	Elective	Environmental Chemistry
9	18H03116702	2	3.4	Elective	Laboratory management
10	18H03116802	2	3.4	Elective	Computational Chemistry
	Total	**24**	**40.8**		
SEMESTER III					
1	18H03120202	2	3.4	40.8	Inorganic Chemistry Laboratory
2	18H03120302	2	3.4		Elemental Chemistry
3	18H03120603	3	5.1		Energetics Chemistry
4	18H03120702	2	3.4		Physical Chemistry
5	18H03121104	4	6.8		Separation and Measurement Methods I
6	18H03121503	3	5.1		Physical Organic Chemistry
7	18H03122002	2	3.4		Basic Biochemistry
8	18H03122102	2	3.4		Biochemistry Laboratory
9	18H03123102	2	3.4	Elective	Water Chemistry
10	18H03124702	2	3.4	Elective	Chemometry
11	18H03125402	2	3.4	Elective	Stereochemistry
12	18H03125502	2	3.4	Elective	Technical Laboratory of Organic Chemistry
	Total	**28**	**47.6**		
SEMESTER IV					
1	18H03120202	2	3.4	40.8	Inorganic Chemistry Laboratory
2	18H03120403	3	5.1		Coordination Chemistry and Organometals
3	18H03120702	2	3.4		Physical Chemistry Laboratory
4	18H03120803	3	5.1		Equilibrium and Chemical Dynamics
5	18H03120902	2	3.4		Chemical Bonding Structure and Spectroscopy
6	18H03121204	4	6.8		Separation Method and Measurement II
7	18H03121603	3	5.1		Synthetic Organic Chemistry

8	18H03122102	2	3.4		Biochemistry Laboratory
9	18H03122202	2	3.4		Advanced Biochemistry
10	18H03123902	2	3.4	Elective	Industrial Chemistry
11	18H03124002	2	3.4	Elective	Applied Thermodynamics
12	18H03125502	2	3.4	Elective	Technical Laboratory in Organic Chemistry
13	18H03126002	2	3.4	Elective	Basic Microbiology
14	18H03126902	2	3.4	Elective	Oceanography Chemistry
	Total	**33**	**56.1**		
SEMESTER V					
1	18H03130502	2	3.4	40.8	Physical Inorganic Chemistry
2	18H03131002	2	3.4		Chemical Kinetics and Catalysis
3	18H03131302	2	3 4		Marine Enviromental Analytical Chemistry
4	18H03131402	2	3.4		Analalytical Chemistry Laboratory
5	18H03131702	2	3.4		Inorganic Chemistry Laboratory
6	18H03131802	2	3.4		Structure Elusidation of organic compounds
7	18H03131902	2	3.4		Organic Chemistry of Natural Materials in Maritime Continent
8	18H03134102	2	3.4		Contemporary Development in Inorganic Chemistry
9	18H03135602	2	3.4		Polymer Chemistry
10	18H03134302	2	3.4		Contemporary development in Physical Chemistry
11	18H03136202	2	3.4		Electrochemical Energy Storage
12	18H03133202	2	3 4	Elective/	Contemporary Development in Analytical Chemistry
13	18H03134202	2	3.4	Elective/	Radiation Chemistry
14	18H03134802	2	3.4	Elective/	Analysis of Organic Chemistry
15	18H03134902	2	3.4	Elective/	Contemporary Development in Organic Chemistry
16	18H03135702	2	3.4	Elective/	Contemporary Development in Biochemistry
17	18H03136102	2	3.4	Elective/	Basics Genetic Engineering
	Total	**34**	**57.8**		
SEMESTER VI					
1	18H03131402	2	3.4	40.8	Analytical chemistry Laboratory
2	18H03131702	2	3.4		Organic chemistry Laboratory
3	18H03131802	2	3.4		structure Elucidation of organic compounds
4	18H03131902	2	3.4		Organic Chemistry of Natural Materials in Maritime Continent

5	18H03132303	3	5.1		Basic Biotechnology
6	18H03132403	3	5.1		Food Chemistry
7	18H03133202	2	3.4	Elective/	Contemporary Development in inorganic chemistry
8	18H03133302	2	3.4	Elective	Geochemistry
9	18H03133402	2	3.4	Elective	Marine Inorganic Chemistry
10	18H03133502	2	3.4	Elective	Synthetic Inorganic chemistry
11	18H03133602	2	3.4	Elective	Environmental Management
12	18H03134202	2	3.4	Elective/	Contemporary Development in physical chemistry
13	18H03134402	2	3.4	Elective	Project Evaluation
14	18H03134802	2	3.4	Elective/	Contemporary Development in Analytical chemistry
15	18H03135002	2	3.4	Elective	Clinical Chemistry
16	18H03135702	2	3.4	Elective/	Contemporary Development in Organic chemistry
17	18H03135802	2	3.4	Elective	organic Compounds engineering
18	18H03135902	2	3.4	Elective	Pharmacology of organic chemistry
19	18H03126102	2	3.4	Elective/	Contemporary Development in Biochemistry
20	18H03136302	2	3.4	Elective	Techniques of Biochemistry research
21	18H03137002	2	3.4	Elective	Integrated Quality Management
22	18H03137102	2	3.4	Elective	Forensic Chemistry
	Total	**46**	**78.2**		
SEMESTER VII					
1	18H03142601	1	1.7	40.8	Research Proposal Seminar
2	18H03142701	1	1.7		Research Results Seminar
3	18H03142804	4	6.8		Thesis
4	18H03142901	1	1.7		Comprehensive Examination
5	18H0314XX04	4	6.8		Community Services
6	18H03143702	2	3.4	Elective	Bioinorganic chemistry
7	18H03143802	2	3.4	Elective	Toxicology of dangerous and Toxic Materials
8	18H03144502	2	3.4	Elective	Material Physical Chemistry
9	18H03145102	2	3.4	Elective	Special analytical chemistry
10	18H03146502	2	3.4	Elective	Medicinal chemistry
11	18H03146602	2	3 4	Elective	Molecular Biotechnology
12	18H03147204	4	6.8	Elective	Field Practices
13	18H03147302	2	3.4	Elective	Learning Methodology
14	18H03147502	2	3.4	Elective	Extracurricular
	Total	**31**	**52.7**		

SEMESTER VIII					
1	18H03142601	1	1.7	40.8	Research Proposal seminar
2	18H03142701	1	1.7		Research Results Seminar
3	18H03142804	4	6.8		Thesis
4	18H03142901	1	1.7		Comprehensive Examination
5	18H0314XX04	4	6.8		Community services
6	18H03144602	2	3.4	Elective	Surface chemistry and colloid
7	18H03145202	2	3.4	Elective	Chemical instrumentation
8	18H03145302	2	3 4	Elective	Pesticide Chemistry
9	18H03146402	2	3.4	Elective	Enzymology
10	18H03147302	2	3.4	Elective	Learning Methodology
11	18H03147402	2	3.4	Elective	Applied Chemistry
12	18H03147502	2	3.4	Elective	Extracurricular
	Total	**25**	**42.5**		
	Grand Total	**243**	**413.1**		

Bachelor in Pharmacy

INTENDED LEARNING OUTCOMES (ILOs)		
Attitude	**ILO1**	Uphold human values and nationalism in carrying out their duties based on Pancasila
	ILO2	Show independency, discipline, responsibility towards their work, and social sensitivity to improve community's quality of lives
Knowledge/Understanding	**ILO3**	Integrate the concepts of basic sciences as foundations of pharmaceutical sciences and pharmacy practice
	ILO4	Recognize the types of pharmaceutical dosage forms, their potential problems, and solution to optimize their therapeutic effects
	ILO5	Comprehend the theoretical concepts related to information and standard procedures of pharmaceutical care as an effort to integrate promotive, preventive, curative and rehabilitative public health
	ILO6	Employ the theoretical and mathematical concepts of drugs, drug kinetics and mechanisms, and the relationship between drug physico-chemistry characteristics and their biological activities
	ILO7	Appraise the concept of development and/or validation of analytical methods for active compounds or crude drugs from synthetic or natural sources
Skills	**ILO8**	Apply logical/critical thinking to analyse, develop, implement and disseminate information from legitimate source to find a solution to a problem
	ILO9	Construct scientific writing based on academic rules and ethics
	ILO10	Choose a decision based on legal practice, professional conduct and ethics to solve problems related to their competence
	ILO11	Develop interpersonal relation with teamwork and be adaptive to dynamic culture and environment
Competence	**ILO12**	Conduct well-designed research related to pharmacy and pharmaceutical sciences
	ILO13	Implement the concepts of pharmaceutical sciences and technologies in designing, formulating and/or developing safe, effective, stable and high-quality pharmaceutical products
	ILO14	Explore ethno-medicine from natural resources based on research data as part of the local wisdom

	ILO15	Generate inventive and innovative idea based on science and technology to create or develop business or job

The following curriculum is presented for the ***Bachelor's program in Pharmacy***:

No.	Code	SKS	SCTS	ECTS/SEM	Course
SEMESTER I					
1	18Y01110102	2	3.4	40.8	Religion Education
2	18Y01110702	2	3.4		Maritime Socio-Cultural Studies
3	18Y01110902	2	3.4		Bahasa
4	18Y01111102	2	3.4		Civic Education
5	18Y01111202	2	3.4		Pancasila
6	20N01110102	2	3.4		Pharmaceutical Botany
7	20N01110201	1	1.7		Practical Pharmaceutical Botany
8	20N01110302	2	3.4		Cellular Biology
9	20N01110404	4	6.8		Basic Sciences in Pharmacy
10	20N01110502	2	3.4		Human Anatomy and Physiology
11	20N01110601	1	1.7		Practical Human Anatomy and Physiology
12	20N01110702	2	3.4		Organic Chemistry
	Total	**24**	**40.8**		
SEMESTER II					
13	18Y01110802	2	3.4	30.6	Science-Technology Perspective
14	18Y01111002	2	3.4		English
15	20N01110802	2	3.4		Microbiology and Parasitology
16	20N01110901	1	1.7		Practical Microbiology and Parasitology
17	20N01111002	2	3.4		Analytical Chemistry
18	20N01111101	1	1.7		Practical Analytical Chemistry
19	20N01111202	2	3.4		Pharmacognosy
20	20N01111301	1	1.7		Practical Pharmacognosy
21	20N01111402	2	3.4		Basic Pharmaceutics
22	20N01111501	1	1.7		Practical Basic Pharmaceutics
23	20N01111602	2	3.4		Biopharmaceutics
24	20N01111702	2	3.4	ELECTIVE	Pathophysiology (E)
25	20N01111802	2	3.4	ELECTIVE	Physical Chemistry (E)
26	20N01111902	2	3.4	ELECTIVE	Phytotoxic and Pesticides (E)
27	20N01112002	2	3.4	ELECTIVE	Social Pharmacy and Pharmaco-economic
	Total	**26**	**44.2**		
SEMESTER III					

28	20N01120102	2	3.4	34.0	Physical Pharmacy
29	20N01120201	1	1.7		Practical Physical Pharmacy
30	20N01120302	2	3.4		Drug Synthesis
31	20N01120401	1	1.7		Practical Drug Synthesis
32	20N01120502	2	3.4		Biochemistry
33	20N01120601	1	1.7		Practical Biochemistry
34	20N01120702	2	3.4		Immunology
35	20N01120802	2	3.4		Entrepreneurship
36	20N01120902	2	3.4		Plant Tissue Culture
37	20N01121002	2	3.4		Microbiological Analysis
38	20N01121101	1	1.7		Practical Microbiological Analysis
39	20N01121202	2	3.4		Pharmacognosy Analysis
40	20N01121302	2	3.4	ELECTIVE	Literature Review in Pharmacy (E)
41	20N01121402	2	3.4	ELECTIVE	Effective and Professional Communication (E)
42	20N01121502	2	3.4	ELECTIVE	Microbial Physiology (E)
43	20N01121602	2	3.4	ELECTIVE	Introduction to Jamu Scientification (E)
	Total	**28**	**47,6**		
SEMESTER IV					
44	20N01121702	2	3.4	34	Solid Pharmaceutical Dosage Forms
45	20N01121801	1	1.7		Practical Solid Pharmaceutical Dosage Forms
46	20N01121902	2	3.4		Phytochemistry
47	20N01122001	1	1.7		Practical Phytochemistry
48	20N01122102	2	3.4		Pharmacology I
49	20N01122201	1	1.7		Practical Pharmacology I
50	20N01122302	2	3.4		Analysis of Food and Pharmaceutical Supplies
51	20N01122402	2	3.4		Clinical Biochemistry
52	20N01122501	1	1.7		Practical Clinical Biochemistry
53	20N01122602	2	3.4		Traditional Medicine
54	20N01122702	2	3.4		Research Methodology
55	20N01122802	2	3.4		Health Legislation and Ethics
56	20N01122902	2	3.4	ELECTIVE	Statistics and Computing (E)
57	20N01123002	2	3.4	ELECTIVE	Pharmaceutical Biotechnology (E)
58	20N01123102	2	3.4	ELECTIVE	Pharmacoepidemiology (E)
	Total	**26**	**44.2**		
SEMESTER V					
59	20N01130102	2	3.4	30.6	Pharmaceutical Analysis

60	20N01130201	1	1.7		Practical Pharmaceutical Analysis
61	20N01130302	2	3.4		Liquid and Semi Solid Phamaceutical
62	20N01130401	1	1.7		Practical Liquid and Semi Solid Phamaceutical Dosage Forms
63	20N01130502	2	3.4		Pharmacology II
64	20N01130602	2	3.4		Bioactive Compound Isolation
65	20N01130701	1	1.7		Practical Bioactive Compound Isolation
66	20N01130802	2	3.4		Phytomedicine
67	20N01130902	2	3.4		Pharmacotherapy I
68	20N01131002	2	3.4		Pharmacokinetics
69	20N01131101	1	1.7		Practical Pharmacokinetics
70	20N01131202	2	3.4	ELECTIVE	Introduction to Pharmaceutical Industry and Distribution (E)
71	20N01131302	2	3.4	ELECTIVE	Food and Beverage Technology (E)
72	20N01131402	2	3.4	ELECTIVE	Radiopharmacy (E)
73	20N01131502	2	3.4	ELECTIVE	Nutriceuticals (E)
	Total	**26**	**44.2**		
SEMESTER VI					
74	20N01131602	2	3.4		Pharmacotheraphy II
75	20N01131702	2	3.4		Sterile Pharmaceutical Dosage Forms
76	20N01131801	1	1.7		Practical Sterile Pharmaceutical Dosage Forms
77	20N01131902	2	3.4		Marine Pharmacognosy
78	20N01132002	2	3.4		Cosmetology
79	20N01132102	2	3.4		Medicinal Chemistry
80	20N01132202	2	3.4		Analytical Method Development and Validation
81	20N01132302	2	3.4		Toxicology
82	20N01132402	2	3.4		Basic Clinical Pharmacy
83	20N01132502	2	3.4		Bioanalysis
84	20N01132601	1	1.7		Practical Bioanalysis
85	20N01132702	2	3.4	ELECTIVE	Advanced Technology in Pharmacy (E)
86	20N01132802	2	3.4	ELECTIVE	Structure -Activity Relationship (E)
87	20N01132902	2	3.4	ELECTIVE	Pharmaceutical Technology of Natural
	Total	**26**	**44.2**		
SEMESTER VII					
88	20N01140101	1	1.7		Research Seminar I : Proposal
89	20N01140201	1	1.7		Research Seminar II : Results
90	20N01140303	3	5.1		Bachelor Student Thesis

91	20N01140401	1	1.7		Viva Voce
92	20N01140504	4	6.8		Student Community Service
93	20N01140602	2	3.4	ELECTIVE	Internship (E)
	Total	**12**	**20.4**		
	Grand Total	**168**	**285,6**	**221,0**	

Master's program in Pharmaceutical Science

INTENDED LEARNING OUTCOMES (ILOs)		
Attitude	**ILO1**	Uphold human values and nationalism in carrying out their duties based on Pancasila
	ILO2	Show independency, discipline and responsibility towards their work and social sensitivity to improve community's quality of lives
Knowledge/Understanding	**ILO3**	Comprehend the drug discovery process from natural compound isolation or chemical synthesis to the pharmacological and toxicological assay stage
	ILO4	Integrate science and technology in designing drug formulations according to Good Manufacturing Practices to produce good-quality pharmaceutical products
	ILO5	Evaluate the proper drug, food, and cosmetic analysis techniques to guarantee the quality of the raw materials and products
	ILO6	Assess the rationale of therapy, pathophysiology, and clinical manifestations of high-prevalence diseases
Skills	**ILO7**	Contribute to the development of science and technology in pharmaceutical sciences through research to produce creative, applicable, and original scientific papers that gain national and international recognition
	ILO8	Contribute to problem-solving related to pharmaceutical science and technology
	ILO9	Establish collaboration with other local, national, and international scientists to promote pharmaceutical science and technology
	ILO10	Choose a decision based on legal practice, professional conduct and ethics to solve problems related to their competence
	ILO11	Develop interpersonal relation with teamwork and be adaptive to dynamic culture and environment
Competence	**ILO12**	Produce creative and innovative scientific work based on the concept of the maritime continent

The following curricular structure is presented for the ***Master's program in Pharmaceutical Science:***