ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Chemistry
Chemistry Education
Pharmacy
Statistics

Master's Degree Programme
Chemistry

Provided by
Universitas Islam Indonesia, Yogyakarta

Version: 23 June 2023

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Program Studi Sarjana Kimia	Bachelor in Chemistry	ASIIN	-	09
Program Studi Sarjana Pendidikan Kimia	Bachelor in Chemistry Education	ASIIN	-	09
Program Studi Sarjana Farmasi	Bachelor in Pharmacy	ASIIN	-	09
Program Studi Sarjana Statistika	Bachelor in Statistics	ASIIN	-	12
Program Magister Kimia	Master in Chemistry	ASIIN	-	09
Date of the contract: 15.10.2020 **Submission of the final version of the self-assessment report:** 05.03.2021 **Date of the audit:** 28.06. – 01.07.2021 **online**				
Peer panel: Prof. Dr. Gernot Friedrichs, University of Kiel Prof. Dr. Gabriele Hornung, Technical University Kaiserslautern Prof. Dr. Michael Keusgen, University of Marburg Prof. Dr. Klaus-Uwe Koch, Westphalian University of Applied Sciences Dr. Marc Vandemeulebroecke, Novartis Pharma AG, Basel Azalea Rahma Septianti, Universitas Airlangga, student				

[1] ASIIN Seal for degree programmes;
[2] TC: Technical Committee for the following subject areas: TC 09 – Chemistry; TC 12 – Mathematics

Representative of the ASIIN headquarter: Rainer Arnold	
Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2014 Subject-Specific Criteria of Technical Committee 09 – Chemistry as of 29.03.2019 Subject-Specific Criteria of Technical Committee 12 – Mathematics as of 09.12.2016	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Program Studi Sarjana Kimia	Sarjana Kimia / Bachelor in Chemistry	-	6	Full time	no	8 Semester	146 CSU / 233 ECTS	1996, Once a year (August)
Program Studi Sarjana Pendidikan Kimia	Sarjana Pendidikan/ Bachelor of Education in Chemistry	-	6	Full time	no	8 Semester	145 CSU / 233 ECTS	2014, Once a year (August)
Program Studi Sarjana Farmasi	Sarjana Farmasi / Bachelor in Pharmacy		6	Full time	no	8 Semester	149 CSU / 246 ECTS	1998, Once a year (August)
Program Studi Sarjana Statistika	Sarjana Statistika / Bachelor in Statistics		6	Full time	no	8 Semester	145 CSU / 246 ECTS	1995, Once a year (August)

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

a) Name	**Final degree (original/English translation)**	**b) Areas of Specialization**	**c) Corresponding level of the EQF[3]**	**d) Mode of Study**	**e) Double/Joint Degree**	**f) Duration**	**g) Credit points/unit**	**h) Intake rhythm & First time of offer**
Program Magister Kimia	Magister Kimia / Master in Chemistry	1. Development of essential oils 2. Materials and electrochemistry for energy and the environment 3. Development of natural materials for health and food	7	Full time	no	4 Semester	54 CSU / 56 ECTS	2019, Twice a year (February, August)

For the Bachelor's degree programme Chemistry (CSP), Universitas Islam Indonesia (UII) has presented the following profile in the Self-Assessment Report:

Vision:

Personify Islamic chemists and excel in the application of knowledge in the field of (i) essential oils, (ii) advanced materials for energy and the environment, and (iii) natural products for food and health.

Mission:

Personalize chemists who have morality, are innovative, creative, applicative, inspiring, and globally competitive, and are capable of synergizing education, research, community service, and reputable nationally and internationally.

Objectives:

1. Able to foster Islamic values as the foundation in daily life and society.

2. Have qualified chemical knowledge and skills.

3. Have a high work ethic, dedication, and commitment.

4. Have managerial ability and can work in teams.

5. Have the ability to continue study and follow the development of science and technology.

6. Capable of developing local advantages (local genius) to compete globally.

7. Have a spirit of entrepreneurship, be innovative, and be independent.

For the Bachelor's degree programme Chemistry Education (CESP), Universitas Islam Indonesia (UII) has presented the following profile in the Self-Assessment Report:

Vision:

In 2025, the CESP UII will become the best program of its kind in Indonesia, capable of producing competent graduates, applying learning with an applied chemistry approach, and abiding by rahmatan lil'alamin (mercy to the universe).

Mission:

1. Become a superior CESP in terms of organizing the management of world-class higher education in the field of chemistry education by enforcing God's revelations and the sunnah of Rasul as a source of eternal truth that brings mercy to the universe.

2. Become a superior CESP in terms of performing research toward the development of science and technology, producing works that are recognized at the national and international levels, and making beneficial contributions to people's lives.

3. Become a superior CESP in terms of performing community service in a professional manner in order to actualize research results, foster a close relationship with the community, and improve community welfare.

4. Become a superior CESP in terms of organizing collaborations aimed at building educational, research, and community service networks, and engaging in Islamic preaching activities.

Objectives:

1. Accelerating the achievement of the university's vision and mission through the provision of excellent and high-quality education according to national education standards by building a superior and high-quality study program management system.

2. Producing excellent study program services oriented toward customer satisfaction for all stakeholders.

3. Producing graduates who have high competence in the field of chemistry education to respond to market needs.

4. Producing research products in the form of internationally reputable products, including scientific works, books, patents, and technology products that can be applied in the field of chemistry education and are competitive at the national and international levels.

5. Producing community service activities based on research results in a professional manner in order to participate in solving global and national problems, especially in the field of chemistry education, and problems facing the nation more generally.

6. Producing mutually beneficial cooperative activities through partnerships and networks at the national and international levels to build an education system for the management of study programs, research and community service, and global standard Islamic values.

7. Producing Islamic activities of global quality to accelerate the realization of rahmatan lil'alamin.

For the Bachelor's degree programme Pharmacy (PSP), Universitas Islam Indonesia (UII) has presented the following profile in the Self-Assessment Report:

Vision:

To become a pharmacy study program that is superior in the promotion of rational drug use and development of pharmaceutical dosage forms from active natural compounds.

Mission:

1. Implementing a quality education process in accordance with the demands of national standards and have a global orientation to produce competent Bachelor of Pharmacy and pharmacist candidates.

2. Developing research in the field of medicinal and cosmetic dosage forms from natural ingredients as well as drug use evaluation, the results of which can be used to improve the quality of the education process and contribute to solving pharmaceutical and public health problems.

3. Cultivating a noble character among the civitas academica to support individual capacity building as an agent of rahmatan lil'alamin.

Objectives:

1. To produce qualified Bachelor of Pharmacy and pharmacist candidates in accordance with the demands of national standards who are prepared to work in various fields of pharmacy.

2. To produce quality scientific work in the field of drug use evaluation and the development of medicinal and cosmetic preparations from natural ingredients, the results of which can be used to improve the quality of education and contribute to solving pharmaceutical and health problems.

3. To build an academic community that has a noble character as an agent of rahmatan lil'alamin.

For the Bachelor's degree programme Statistics (SSP), Universitas Islam Indonesia (UII) has presented the following profile in the Self-Assessment Report:

Vision:

To become a leading statistics study program that produces data analysts who have integrity and enthusiasm and will advance in the community.

Mission:

1. Incorporating Islamic values into statistical thinking (Dakwah Islamiyah).

2. Developing international standards for teaching and learning activities (Education).

3. Implementing and supporting statistics research to solve the problems of humanity (Research).

4. Applying statistical skills and ideas for the benefit of others (Community service).

Objectives:

1. Producing graduates who have mastered theory and methodology of data analysis and are ready to play a global role as policy analysts, disaster analysts, data scientists, and actuaries with integrity and enthusiasm.

2. Producing high-quality scientific statistical research that is beneficial for the welfare of the community.

For the Master's degree programme Chemistry (MCSP programme) UII has presented the following profile in the Self-Assessment Report:

Vision:

In 2030, the Master of Chemistry Study Program will become the best Master of Chemistry Program in Indonesia in the fields of developing essential oils, materials and electrochemicals for energy and the environment, and the isolation and non-volatile synthesis of chemicals for health and as rahmatan lil alamin.

Mission:

1. Become a superior study program at the graduate level of chemistry and a world class higher education management program in the field of graduate level (master) of chemistry by upholding the divine revelations and the sunnah of the Prophet as a source of eternal truth that brings grace to the universe.

2. Become a superior study program in the performance of research in science and technology development, producing works that are recognized nationally and internationally and are beneficial to people's lives.

3. Become a superior study program in terms of organizing community service in a professional manner to actualize research results, foster close relationships with the community, and improve community welfare.

4. Become a superior study program by building collaborations and education, research, and community service networks, as well as engaging in Islamic da'wah activities.

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

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

Evidence:

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

Preliminary assessment and analysis of the peers:
For all degree programmes under review, Universitas Islam Indonesia (UII) has described and published Programme Educational Objectives (PEO) and Programme Learning Outcomes (PLO). While the PEO are rather general and refer to the vision and mission of the degree programme, the PLO cover a number of specific competences students should acquire in their respective degree programme. Both, PEO and PLO of each degree programme are published in the study guidebook, which is available to all students, staff, and any other interested parties from the study programme's website.

The peers refer to the Subject-Specific Criteria (SSC) of the Technical Committee Chemistry, Pharmacy as a basis for judging whether the intended learning outcomes of the Bachelor's degree programmes Chemistry, Chemistry Education and the Master's degree programme Chemistry, as defined by UII, correspond with the competences as outlined by the SSC. They come to the following conclusions:

The goal of the CSP programme is to impart essential competencies in mathematics, the natural sciences and the core subjects of chemical sciences (organic, inorganic, physical, analytical, and theoretical chemistry). In addition, the graduates should learn about the different substance classes, their properties, reaction possibilities and uses, and be able to independently plan and carry out practical work. They also should be familiar with modern experimental methods of chemistry, the safe handling of chemicals, have a sound knowledge of safety and environmental issues and the underlying legal framework, and be

able to interpret, critically assess, present and communicate relevant information and new research results, and to discuss them with specialist colleagues. Finally, the graduates should be capable of using the acquired knowledge and skills to find solutions to practical chemical problems and for conducting scientific work.

The graduates of the CSP programme have several job opportunities; they can work in the chemical or petrochemical industry, at universities as well as in research institutes or in the public administration. The majority of CSP graduates work in sectors such as chemical and pharmaceutical industry, oil and gas companies, mining and polymer industries, environmental research and monitoring institutions, public agencies, and educational institutions by becoming teachers or lecturers. Aside from that, there are many who pursue careers as entrepreneurs. Until 2015, 82% of the CSP graduates were employed within six months after graduation.

The goal of the CESP programme is to educate students to become competent science teachers in secondary and undergraduate level education (high schools). CESP graduates should acquire a basic knowledge of natural sciences and gain methodological and educational competences in the chemical sciences (analytical chemistry, organic chemistry, inorganic chemistry, and physical chemistry) in order to learn about the structure, dynamics, and energy, as well as the basic principles of separation, analysis, synthesis and characterization of chemicals. Furthermore, graduates should also be able to carry out practical work in laboratories and to prepare experiments for high school students. Moreover, students should be familiar with the safe handling of and have knowledge of safety and environmental issues. In addition, graduates should acquire the necessary skills to work scientifically as well as in the field of education, adhering to modern methodologies and theoretical concepts in chemistry learning and teaching. This includes designing, implementing, and evaluating chemistry learning media by utilizing information and communication technology. This should qualify graduates to handle chemistry-learning problems and to provide quality chemistry learning that is conducted in classroom or institutions based on scientific data and analysis. CESP graduates have the qualifications to become chemistry educators (teachers) in high schools or vocational schools who have chemistry subjects. Alternatively, they can continue their education to a higher academic level or establish their own enterprises. In fact, CESP graduates find suitable jobs in various sectors, such as educational institutions, industry, and public agencies.

The peers analyse whether the intended learning outcomes of the Bachelor's degree programme Pharmacy, as defined by UII, correspond with the general ASIIN criteria. They come to the following conclusions:

The overall goal of the PSP programme is to educate general pharmacists that can work in different areas (hospitals, pharmacies, pharmaceutical companies, and health administration) after graduation. The qualification objectives include acquiring sound fundamental knowledge of biology and chemistry. The graduates should gain methodological competences in the pharmaceutical sciences, should be able to carry out practical work in laboratories and be able to handle samples and organisms. In addition, students should be familiar with the safe handling of chemicals and pharmaceuticals and have knowledge of safety and environmental issues as well as the associated legal regulations.

The vast majority of PSP graduates directly continues their academic studies to obtain a professional degree as a pharmacist (apothecary) before applying for a job. Nevertheless, there are some job opportunities graduates of the Bachelor's programme. Pharmacists can work in the various industries including medicine, food, herbal medicine, herbal and cosmetic industries; research institutes; clinical laboratories; quality testing laboratories; drug information agencies, health insurance agencies; and can take part in the field of education as academics in universities, as manager in drug stores, and as analysts in medical laboratories or public institutions.

The peers analyse whether the intended learning outcomes of the Bachelor's degree programme Statistics, as defined by UII, correspond with the Subject-Specific Criteria of the Technical Committee Mathematics. They come to the following conclusions:

Graduates of the SSP programme should be able to master theoretical concepts and methods of statistics. They are able to develop statistics for the utilization and development of science and technology, apply statistics to education, research and community services. They are able to make the right decisions based on analysis of statistics, have experience in working on real cases in the field of statistic and a good ability to communicate statistics in writing and orally. They dispose of the ability for further studies and/or lifelong learning and demonstrate professional ethics and soft skills. They are prepared to work in various fields such as the Banking and Finance Sector, as actuaries or have positions in higher education institutions, research centres, engage in financial and statistical consultancy etc.

The SSP programme is designed to prepare its graduates to become experts in data analysis. The curriculum offers concentrations on Data Scientist, Actuary, Business and Social, Industry and Disaster Management. The current era of information technology has resulted in a flood of data. The needs of experts who can collect, process, manage, analyse, interpret and present data is still very minimal compared with the needs required due to the data flood.

The goal of the MCSP programme is to produce more researchers to support UII as a research university. The qualification objectives include the acquisition of advanced theoretical and practical chemical skills, especially an in-depth knowledge in one of the following three research areas:

1. Development of essential oils
2. Materials and electrochemistry for energy and the environment
3. Development of natural materials for health and food

In addition, students learn to apply their competences in laboratories and are able to carry out advanced research activities. Graduates of the MCSP programme should be able to master advanced theoretical chemical concepts and to operate modern instruments in the chemical field.

Graduates of the MCSP programme have career opportunities in research, higher education, chemical industry (cements, medicines, oil and gas, etc.), public institutions, chemical and environmental consultancy, as well as entrepreneurs.

In addition to the subject-related qualification objectives, students of all degree programmes should be capable of working autonomously as well as in a team-oriented manner, and be able to conduct research activities. Furthermore, they should be able to solve subject-relevant problems, can present their results, have trained their analytical and logical abilities, and have an awareness of possible social and ethical effects of their actions. During the course of their studies, students should have acquired communicative and language skills, and have developed a strategy for life-long learning.

In the discussion with the peers, the business representatives confirm that graduates from all Bachelor degree programmes under review are well prepared for qualified employment – graduates from the newly established MCSP programme are not yet available for the job market. The business representatives emphasise that UII graduates are ready to take on demanding work positions. The peers appreciate that the intended qualification profiles allow the graduates to take up an occupation, which corresponds to their qualification in a comparatively short period after graduation.

The auditors hold the view that the objectives and intended learning outcomes of all degree programmes under review are reasonable and well founded and that there is a formal process in place to update the intended learning outcomes.

During the audit, the peers gain the impression that UII is an open university, where Islamic values are the base of the education. Students from every faith are admitted, although the vast majority of students at UII are Muslims. Values as honesty and integrity can be applied

to all kinds of academic education and thus to the chemistry, pharmacy, and statistics programmes, which are the subject of this report.

In summary, the auditors are convinced that the intended qualification profiles of the degree programmes allow students to take up an occupation, which corresponds to their qualification. The degree programmes are designed in such a way that they meet the goals set for them. The peers judge that the objectives and intended learning outcomes of the degree programmes adequately reflect the intended level of academic qualification and correspond sufficiently with the respective ASIIN Subject-Specific-Criteria (SSC).

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report

Preliminary assessment and analysis of the peers:
The auditors confirm that the English translation and the original Indonesian names of all degree programmes under review correspond with the intended aims and learning outcomes as well as the main course language (Indonesian).

Criterion 1.3 Curriculum

Evidence:

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

Preliminary assessment and analysis of the peers:
All undergraduate programmes at UII are designed to be completed in eight semesters or four academic years with a maximum of 14 semesters or seven academic years. Each semester is equivalent to 16 weeks of learning activities. Besides these learning activities, there is one week for midterm exams and one week for final exams. The odd semester starts in August and ends January of the following year, while the even semester lasts from February to July.

The curriculum consists of university requirements and compulsory and elective courses determined by the Faculty of Mathematics and Natural Sciences and the respective departments. University requirements are courses that need to be attended by all undergraduate students at UII. There are seven university requirements with 14 CSU: Islamic Education, State Philosophy, English, Bahasa Indonesia for Academic Communication, Islam for Scholars, Civic Education, and Sharia Entrepreneurship. These courses are almost all offered in the first two semesters of studies, in addition to courses conveying basic knowledge of natural sciences and mathematics.

Courses on the different subject-specific educational sciences are offered from third to eighth semester. Elective courses can be taken from the third year of study. Students usually choose elective courses that relate to their thesis and/or their individual interests. During the eight semesters, students must also complete the undergraduate thesis (6 CSU) and the community service (3 CSU). Graduates of the PSP programme are eligible for the pharmacist professional degree programme (1-year programme) to obtain an apothecary (pharmacist) license.

Usually during the last year of studies, students must complete the community service. The peers discuss with the programme coordinators about the content and goal of this course. The programme coordinators explain that community service is compulsory for all Indonesian students. It has a minimum length of four weeks and often take place in villages or rural areas where students stay and live together with the local people. The course is designed "to allow students to apply their knowledge based on their field in order to empower society." Since the community service usually takes place in remote areas, the students cannot attend any classes during this time. The students work in interdisciplinary teams during the community service in order to advance the society and bring further development about. This course was introduced at all Indonesian Universities in 1971. The assessment of the community service consists of a work plan, programme implementation, and activity report. The peers understand that students should work for the benefit of the community and the Indonesian society during the community service and support this concept.

The Master's degree programme Chemistry encompasses 54 CSU, consisting of compulsory courses (36 CSU), electives (6 CSU), and university requirements (Intensive Study of the Quran 5 CSU, Islam in the discipline of chemistry 3 CSU, Ethics in the chemist profession 2 CSU, and Scientific Writing / Activity Workshop Publication 2 CSU). In their course of studies, MCSP students can focus on one of three different research areas:

1. Development of essential oils
2. Materials and electrochemistry for energy and the environment
3. Development of natural materials for health and food

The members of the teaching staff explain on demand of the peers that they offer possible topics for the Bachelor's or Master's thesis according to their own research projects. All members of the teaching staff supervise theses. The students have to design a research proposal with a time schedule for the project, which is discussed with the academic advisor. If they agree, the students apply formally for being allowed to work on the suggested topic.

The peers gain the impression that the graduates of the all degree programme under review are well prepared for entering the labour market and can find adequate jobs in Indonesia. During the discussion with the peers UII's partner from the industry/public sector confirm that the graduates have a broad scientific education, are very creative, and have manifold competences, which allows them to find adequate jobs. However, the employers mention that it would be useful for the students to gain more experience in the industry and to acquire more soft skills with respect to team work, communication, and presentations. This is most relevant for the CSP and the SSP programmes. The peers support this point of view and suggest to invite lecturers from the industry, and to establish more collaboration with public institutions and companies where students can do their internship/apprenticeship. In addition, students should be encouraged to get more industry experience beside the offered classes in the degree programmes. Moreover, it could be useful to incorporate soft skill training in the courses, for example by promoting presentation skills.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Academic Guidelines
- Decree of Minister of Research, Technology and Higher Education No. 2, 2015
- UII webpage: https://pmb.uii.ac.id/
- Discussions during the audit

Preliminary assessment and analysis of the peers:

According to the Self-Assessment Report, the requirements, schedule, registration venue, and selection test are announced on UII's webpage and thus accessible for all stakeholders. The new student admission rules for all Bachelor's degree and Diploma programmes are the same, and is conducted at university level. Therefore, the admission requirements and selection processes for CSP, PSP, SSP, and CESP are all the same.

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

1. Report-Based Selection (SIBER), which selects prospective students through student report scores (Semester 3, 4, and 5).

2. Young Leader Search (PPM), which selects prospective applicants/students who have experience as an administrator of student organizations.

3. Computer-Based Test (CBT) is a selection pattern conducted online but carried out at the UII Integrated Campus and several locations outside the UII Integrated Campus.

4. Paper-Based Test (PBT) is a selection pattern consisting of a written test and is held at the UII Integrated Campus.

5. Tracking Outstanding Students (PSB) is a selection pattern facilitated through the assessment of achievements in the academic field and the interests/talents of students in the category of scholarships and non-scholarships.

6. Hafiz Qur'an (PHA) is a selection pattern aimed at outstanding students with high academic ability who have memorized at least the 10th Juz of the Qur'an.

As described in the Self-Assessment Report, the number of applicants exceeds the number of available places in all undergraduate programmes:

Study Program	2018/2019			2019/2020			2020/2021		
	No. of applicants	No of Registered	No. of Dropped out	No. of applicants	No of Registered	No. of Dropped out	No. of applicants	No of Registered	No. of Dropped out
CSP	341	121	26	464	140	26	551	73	12
PSP	587	133	21	546	175	41	602	183	36
CESP	193	63	13	138	52	3	27	22	3

This is typical for the more prestigious Indonesian universities, because there are so many high school graduates every year in Indonesia and the number of study places is limited. For UII this has the advantage, that they are able only to admit the most suited students.

The situation is similar for the SSP programme:

Academic year	Number of applicants	Number of enrolled	Number of admitted
2015/16	595	264	138
2016/17	640	216	103
2017/18	495	183	96
2018/19	557	248	134
2019/20	493	327	176

The table shows that the ratio between applicants and admitted students was on average 1:3 over the last five years. The SSP has engaged a team to attract high school students to the degree programme. As a result, the annual number of applicants has consistently exceeded 450 over the last five years. The yearly intake of new students in the SSP programme is around 150 students, with the maximum number determined by the ratio of students to teachers, which currently stands at 1:30.

For the MCSP programme, the admission process is carried out by the Faculty of Mathematics and Natural Sciences. Applicants should meet the following requirements:

a. Graduated from national-accredited study programmes in the subjects of Chemical Science, Chemical Education, Chemical Engineering, Pharmacy, Environmental Engineering, as well as other study programs related to the field of chemistry.

b. Have a valid certificate and academic record/transcript with a GPA ≥ 3.00.

c. Have a CEPT/ITP/IBT/TOEIC/IELTS English proficiency certificate equivalent to a score of ≥ 450.

d. Have a certificate of Academic Potential Test (TPA) with a score of ≥ 450.

Student selection is carried out objectively by the MCSP Admissions Team, which involves the Department of Chemistry and its faculty members. Evaluation is based on the previous level of academic education and the academic requirements met by the TPA certificate as well as the ability to communicate in English, as demonstrated by an English proficiency certificate. Bachelor graduates from chemistry programmes can apply, an interview and a written chemistry test are conducted. Depending on the results, students can be admitted to the MCSP programme.

The admission process for new students of MCSP is open twice a year at the beginning of each semester (February and August).

The maximum number of students who can be admitted to the MCSP programme is 20 per semester; the student per lecturer ratio is 2:1. The ratio of applicants to admitted students is currently 5:4.

In summary, the auditors find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

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

The peers support the plans to give students more opportunities to gain experience outside the university and are glad to hear that this is in line with the guidelines of the Indonesian Ministry of National Education and Culture.

The peers consider criterion 1 to be fulfilled.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

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

Preliminary assessment and analysis of the peers:
The curriculum of the Bachelor's degree programmes is aligned with the national standards in Indonesia, which determine the minimum number of course credits and groups of courses that must be offered. The study plans include theoretical and practical courses, thesis and thesis proposal, community service, and electives.

In the CSP programme, the electives are divided into three areas:

1. Chemical entrepreneurship

2. Chemical industry

3. Energy and environment

Elective courses can be chosen by the students in accordance with their areas of interest and after consultation with their academic advisor. The courses in the first two semesters convey basic knowledge of natural sciences, mathematics and languages (Indonesian and English). Courses on the different chemical sciences are offered from the third to the sixth semester. During the seventh and eighth semester, students must complete the Community Service and the undergraduate thesis.

The CESP curriculum is designed to help students to become experts in chemistry teaching. To this end, students are required to attend classes in general education, teaching professions and take courses as well as perform teaching practice to gain experiences and prepare themselves to become good chemistry teachers. For this reason, CESP students must take courses on the development of the principles and methods of chemistry learning in schools, including the development of chemistry textbooks, experimental methods and curriculum.

Courses in the first two semesters of the CESP programme convey basic knowledge of natural sciences, mathematics, education and languages (Indonesian and English). In addition, students need to attend general obligatory courses, such as Islam and ethics, state philosophy and civic education, which are university requirements and need to be attended by all students at UII. From the third semester on, more subject-specific classes are offered, with a focus on chemistry. In addition, several educational courses (Science Education, Microteaching, Teaching and Learning Strategies, Assessment for Chemistry Learning, Planning and Developing of Chemistry Learning, Education Profession, Review of Chemistry Curriculum for School). In the third year of studies, advanced concepts in pedagogics and chemistry are taught. During the seventh and eighth semester, students must complete the Community Service and the undergraduate thesis.

The curriculum of the PSP programme encompasses 70 compulsory courses and students can chose from 17 electives. The course structure and sequence are aligned with the Competency Standards for Graduates of Pharmacy Education from the Indonesian Association of Pharmacy Higher Education (APTFI). The students' individual study plans are different from each other, but have to be approved by their academic advisors.

The SSP curriculum consists of 59 compulsory courses and students can chose from 35 electives. In 2017, five areas of scientific interests were introduced: statistical disaster management, social and business statistics, industrial statistics, data science, and actuarial science.

The design of the programme has been organized from basic to advanced courses. Students are required to take fundamental science courses offered by the department such as calculus, data analysis, statistical methods, and linear algebra in the first semesters. More advanced courses in mathematics, informatics, and statistics are offered in the following semesters, with a special focus on the five areas of interest. During the seventh and eighth semester, students must complete the Community Service and the undergraduate thesis.

The MCSP programme encompasses three areas of specialisation:

1. Development of essential oils
2. Materials and electrochemistry for energy and the environment
3. Development of natural materials for health and food

The focus in essential oil development includes the isolation and synthesis of essential oil derivatives (clove oil, ginger oil, patchouli oil, jasmine oil, etc.). Research on materials and electrochemistry for energy and the environment deals with the development of natural and synthetic materials. In addition, there is focus on electrochemical subjects, including electrochemical applications for enzyme-based sensors (electroanalysis), degradation of wastewater (electrodegradation), and water disinfection (electrodisinfection). Courses in the area of development of natural materials for health and food focus on the development of natural plant-based drugs and organic synthesis, food modification and diversification, and the development of natural pesticides.

The peers analyse the curriculum of the SSP programme and have several suggestions. The module "IT & Big Data" should cover strategies for assessing the operating characteristics of the final prediction model in an unbiased way, especially the use of an independent test set (other than cross validation). The module "Survival Analysis" should cover the Kaplan-Meier estimator, and the module "Biostatistics" seems to repeat of lot of fundamentals, which are already taught in other modules (probability theory, regression, etc.). The programme coordinators should analyse if this is necessary or if it would more useful to dedicate more time to biostatistics applications. The module "Exploratory Data Analysis" seems to cover confirmatory analysis as well, is this necessary? The categorical data modules are placed in different semesters in the module handbook and the study plan. This should be aligned, and it would be useful to offer a fundamental topic such as categorical data analysis not too late in the curriculum.

With respect to the curriculum of the CSP programme, the peers confirm that the offered courses cover all important aspects of a Bachelor's programme in chemistry. A specific feature of the UII curriculum is the rather strong focus on analytical chemistry as well as the timely inclusion of biochemistry and biotechnology aspects, including a short practical course on this topic. A missing topic, however, is a course on the national and international legal regulations on handling, labelling, and marketing of chemicals.

One critical aspect of the degree programmes is the relative small scope of practical laboratory work. As the programme coordinators explain, the share of practical laboratory work is 10 % in CSP, 10 % in CESP, 7 % in SSP, and 16% in PSP (not including the final projects). This is rather low in comparison to international standards. Since it is very important for students to gain sufficient practical experience in laboratory work, the peers strongly recommend to increase the scope of practical laboratory work. Usually students do the experiments together in groups of two to five students (depending on the course); however, there should be enough instruments and laboratory space (including fume hoods) so that the experiments can be conducted by groups of two to three students. Otherwise, students

may not acquire the necessary hands-on experience in conducting experiments and in responsible and safe use of chemicals.

While looking at the provided study plan, the peers notice that there are some compulsory classes, for which no credits are awarded. These are for example: Islamic Boarding (ONDI, LKID), Al-Qurán Reading and Writing (BTAQ), Industrial Study, UNI-101 PNDI, UNI-102 Qur'anic Self Development, and UNI-222 Self Development Training. Since all mandatory parts of the degree programmes need to be awarded with credits, the peers expect UII to award credits to all compulsory courses and list them in the respective study plans.

With respect to the MCSP programme, the peers are surprised to learn that there is no compulsory practical work in the MCSP programme, although some practical work may be related with tasks from the theoretical courses. MCSP students will access the laboratories during their research work (thesis) which covers approximately 25 % of the curriculum. The peers insist that there should be some advanced practical courses to impart the competencies that are necessary for conducting independent research activities and the Master's thesis.

Although the three main foci of specialisation in the MCSP programme are well chosen to cover the existing expertise at UII, based on the partly fragmentary documentation provided and the audit interviews alone, the peers are not fully convinced that the MCSP programme is actually implementing and achieving the learning objectives at Master's level. In particular, they were not able to finally assess the quality of the technical laboratory equipment and the academic level of research carried out. As this is a newly established programme (it has been offered since 2019), no final theses were available at the time of the audit; UII was only able to submit a research proposal. However, this proposal is not sufficient for conclusively assessing the academic quality of the degree programme and the research activities conducted therein. Therefore, the peers expect UII to submit examples of theses from the MCSP programme. Moreover, an on-site visit of the laboratories and a discussion with MCSP graduates will be necessary to better assess the actual working conditions.

In summary, the peers gain the impression that the choice of modules and the structure of the curriculum ensures that the intended learning outcomes of the respective degree programme can be achieved (all programmes), provided that the share of independent practical laboratory work in reasonably sized student groups can be increased (in particular for CSP and CESP). A final assessment of the promising MCSP programme should be based on the availability of successfully completed theses.

International Mobility

The Rector of UII explains in course of the audit that UII want to raise its international reputation with the goal of open doors for establishing new international collaborations. For this reason, UII aims for improving the quality of teaching and learning process by comparing and aligning them to international standards.

According to the Self-Assessment Report, the MCSP programme has established several international cooperations by conducting collaborative activities and signing cooperation agreements. International collaborations with a number of overseas universities provide opportunities for MCSP students to take part at student mobility programmes. Those overseas universities are Hokkaido University, Japan; Kansai University, Japan; Universiti Tunku Abdul Rahman, Malaysia; Universiti Sains Islam Malaysia, Malaysia; Universiti Kebangsaan Malaysia, Malaysia; Princes Songkhla University, Thailand; Curtin University, Australia.

The partnerships have been established in order to expand and enhance the students' research and international experience through taking part at exchange programmes. However, due to the COVID-19 pandemic, MCSP could not yet send students abroad; in its place, webinars and online meetings with foreign lecturers have been conducted.

The students confirm during the discussion with the peers that some opportunities for international academic mobility exist, mostly with universities in Malaysia and Thailand. However, they also point out that they wish for more places, more exchange programmes, and more scholarships. So far, the main obstacles, which are limiting students' academic mobility, are the language barrier and financial restrictions (high living costs). Currently, most stays abroad are short term stays, either for attending workshops or for taking part at seminars for a couple of weeks. Longer stays in the course of exchange programmes (one semester or longer) are very rare. In addition, students would like to improve their English proficiency in order to increase their international job perspectives and their chances for receiving a scholarship for continuing their academic education at an international university. To this end, the peers appreciate that one group of students in the PSP programme is taught in English, which is a new development and the first step to offering an international pharmacy programme at UII. It would be a good idea to have an English class in the other Bachelor's programmes as well. Moreover, for Master's students it is essential to become proficient in English. Therefore, in the MCSP programme, there should be some courses taught in English.

The peers discuss with UII's management if there is a strategic concept to increase the international mobility of students and teachers. They learn that UII has many international partners and has established some double degree programmes. The peers support these measures; however, they recommend increasing the effort to further internationalising UII

by establishing more international cooperations and exchange programmes and offering more and better endowed scholarships.

The peers point out that rules for recognising achievements and competences acquired outside UII need to be established. They render the transition between higher education institutions easier and support the internationalization of UII. For this reason, the peers expect UII to draft a regulation on the recognition of credits acquired abroad.

In summary, the peers recommend further promoting the academic mobility of the students, cooperating with more renowned international universities, and to filling the already established collaborations with life.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Academic Guidelines
- Discussions during the audit

Preliminary assessment and analysis of the peers:
Based on the National Standards for Higher Education of Indonesia (SNPT), all programmes use a credit point system called CSU, which is regulated as follows:

Type of activity	Definition of 1 CSU/week/semester	Duration (min)	TOTAL (min)
Classroom course	Classroom meeting	50	170
	Structured task	60	
	Independent work	60	
Practical course	Practical work	170	170
Seminar	Seminar meeting	100	170
	Independent work	70	

In comparison to ECTS credit system, wherein 1 ECTS credit equals 25-30 hours of students' workload per semester, it is determined that 1 CSU is awarded for 170 minutes of workload per week and the relation between the different kind of learning (contact hours, self-studies) is fixed.

To complete the degree programme in time, Bachelor students need to take an average of 18 CSU per semester excluding co-curricular contents. However, the regular schedule usually covers 20-21 CSU per semester to give more space in the last semesters for resits, or more electives. If a student is not satisfied with his GPA, she or he can repeat the classes, but this will lead to a prolongation of the study time.

As described in the Self-Assessment Report, UII converts the CSU according to the following calculation:

$$
\begin{aligned}
1\ \text{SKS} &= 170\ \text{minutes/week} \\
&= 2.83\ \text{hours/week} \\
&= (16 \times 2.83)\ \text{hours/week} \\
&= 45,328\ \text{hours/semester} \\
1\ \text{ECTS} &= 28\ \text{hours/semester} \\
\text{CESP} &= 144\ \text{SKS} \\
\left(\frac{45,328}{28} \times 144\right)\ &\text{ECTS} = 233\ \text{ECTS}
\end{aligned}
$$

The peers perceive that the underlying credit hour system used for assigning credit points makes use of a fixed amount of contact hours and hours required for self-studies. This results in a conversion rate of about 1 to 1.6 between CSU and ECTS credits. However, the semester workload indicates the time students typically need to complete all learning activities (such as lectures, seminars, projects, practical work, self-study, and examinations) and these need to be ascribed separately to each component of the curriculum.

The peers point out that the Faculties of Mathematics and Natural Sciences should follow the ECTS Users' Guide to determine the students' total workload. As described in the ECTS Users' Guide, the estimation of students' workload should include all learning activities. This is the time students typically need to complete all learning activities (such as lectures, seminars, projects, practical work, self-study and examinations).

In other words, a seminar and a lecture may require the same number of contact hours, but one may require significantly greater workload than the other because of differing amounts of independent preparation by students. Typically, the estimated workload will result from the sum of:

- the contact hours for the educational component (number of contact hours per week x number of weeks)

- the time spent in individual or group work required to complete the educational component successfully (i.e. preparation beforehand and finalising of notes after attendance at a lecture, seminar or laboratory work; collection and selection of relevant material; required revision, study of that material; writing of papers/projects/dissertation; practical work, e.g. in a laboratory)
- the time required to prepare for and undergo the assessment procedure (e.g. exams)

Since workload is an estimation of the average time spent by students to achieve the expected learning outcomes, the actual time spent by an individual student may differ from this estimate. Individual students differ: some progress more quickly, while others progress more slowly. Therefore, the workload estimate should be based on the time an "average student" spends on self-studies and preparation for classes and exams. The initial estimation should then be verified via students' questionnaires.

Since the workload of the students was only estimated by the programme coordinators and seems to be too low in comparison to the actual time needed by the students, the peers suggest re-evaluating the calculation of ECTS and engaging the students in verifying the weight of each module. This could e.g. be done by including a respective question in the course questionnaires. Especially the total workload and the awarded ECTS credits for the MCSP programme need to be verified. As mentioned in the Self-Assessment report, currently only 56 ECTS credits are awarded for the whole programme. This is too low for a two year full time study programme. By European standards, 30 ECTS credits should be awarded per semester. By correctly displaying students' workload in ECTS credits, UII would facilitate academic mobility and better support their graduates if they apply for international programmes.

In any case, UII must make sure that the actual workload of the students and the awarded ECTS credits correspond with each other and make that information transparent in the module descriptions and the study plans.

Criterion 2.3 Teaching methodology

Evidence:

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

Preliminary assessment and analysis of the peers:
Various teaching and learning methods (including lectures, computer training and classroom and lab exercises, individual and group assignments, seminars and projects, etc.) have been implemented. Structured activities include tutorials, homework, assignments (reading or problem exercises) and practical activities. Group project assignments are given in some courses to develop students' skills in teamwork, communication, and leadership. The assignments and exercises should help students to develop their abilities with respect to critical thinking, written/oral communication, data acquisition, problem solving, and presentations.

UII has the goal to support the transition from a teacher-centred to a student-oriented teaching method in order to involve all students in the learning process and to develop their thinking and analytical skills.

During the classes, active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. This should ultimately contribute to the transition from a teacher-centred to a student-centred learning approach.

The most common method of learning is class session, with several courses having integrated laboratory practices. Lecturers generally prepare presentations to aid the teaching process. With individual or group assignments, such as discussions, presentations, or written tasks, students are expected to improve their academic as well as their soft skills. Laboratory work covers laboratory preparation, pre or post-tests, laboratory exercises, reports, discussions, and presentations. In addition, practical activities should enable students to be acquainted with academic research methods.

To help students achieve the intended learning outcomes and to facilitate adequate learning and teaching methods, UII has developed an e-learning platform, where students and teachers can interact.

The peers point out that the COVID-19 pandemic currently does and similar future scenarios may probably affect face-to-face teaching and practical work. In order to be prepared to and deal with such situations, the peers recommend not using only online teaching for imparting practical competences. They suggest using blended/hybrid learning, which refers to different teaching/learning scenarios that combine online and face-to-face mode (physical presence) in varying proportions, while keeping the pandemic-related risk low. Blended learning combines the advantages of face-to-face events and e-learning in such a way that the respective advantages are strengthened and the disadvantages are compensated. The usage and meaning of "hybrid learning" has taken on a special component and also refers to teaching/learning scenarios in which a course can be offered simultaneously in the pres-

ence -for one group of students- and online -for another group of students. In these scenarios, too, face-to-face (physical presence) and online components are linked. In this respect, hybrid teaching/learning scenarios represent a special case of blended learning. From the peers' point of view, hybrid learning during pandemics would be useful and highly recommended in order offering practical laboratory classes in compliance with hygienic regulations and measures so that students can go to the laboratories. Otherwise, the already limited practical education will not be sufficient.

Besides these issues, the peer group considers the teaching methods and instruments to be suitable to support the students in achieving the intended learning outcomes.

Criterion 2.4 Support and assistance

Evidence:

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

Preliminary assessment and analysis of the peers:
UII offers a comprehensive advisory system for all undergraduate students. At the start of the first semester, every student is assigned to an academic advisor. Each academic advisor is a member of the academic staff and is responsible for approximately 20 students (undergraduate programmes) or 10 students (MCSP programme) from his/her classes. The academic advisor is a student's first port of call for advice or support on academic or personal matters.

The role of the academic advisor is to help the students with the process of orientation during the first semesters, the introduction to academic life and the university's community, and to respond promptly to any questions. They also offer general academic advice, make suggestions regarding relevant careers and skills development and help if there are problems with other teachers. The students confirm during the discussion with the peers that they all have an academic advisor.

In general, students stress that the teachers are open minded and communicate well with them and take their opinions and suggestions into account and changes are implemented if necessary (e.g. shifting the class on scientific writing to the first semester).

All students at UII have access to the digital academic portal (SIMAK) which is integrated with the University Information System. The students' profiles (student history, study plan,

academic transcript and grade point average/GPA, lecturer evaluation, course list) are available via SIMAK.

Finally, there are several student organizations at UII; they include student's activity clubs, which are divided into arts, sports, religious and other non-curricular activities.

The peers notice the good and trustful relationship between the students and the teaching staff; there are enough resources available to provide individual assistance, advice and support for all students. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully and without delay. The students are well informed about the services available to them. The peers judge the extensive advisory system to be one of the particularly strong points of UII.

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

The peers see that many Master's degree programmes offered in Indonesia do not re-quire practical work and that this is accepted by the Indonesian Ministry of Education. However, conducting advanced practical work in laboratory, in addition to the practical work related to the preparation of the Master's thesis, is required in a Master's programme in Chemistry by international standards. For this reason, the peers insist that necessary to introduce compulsory advanced laboratory courses to the curriculum of the MCSP programme in order to impart the competencies expected from someone holding a Master's degree in Chemistry. The revised outline of the module "Research Design and Publication" is pointing in this direction. However, it remains unclear how the content of this course makes sure that students acquire practical competencies covering a broad range of advanced chemical laboratory procedures and the use of chemical instruments in synthesis and analysis work – going beyond the Bachelor's level and the already existing main research foci of the Chemistry Department. A broad set of practical competencies is necessary to prepare the students for a diverse job market and serves as the basis for conducting innovative and independent research activities.

UII outlines that some activities embedded in the curricula of all study programmes (such as Islamic Boarding, Al-Quran Reading and Writing) are a manifestation of UII values to strengthen students' character and therefore should be conducted and broken down in mandatory classes, but no credits are awarded. Instead, participation credit units (PCU) are awarded and listed in the Diploma Supplement. However, credits need to be awarded to all compulsory courses. Consequently, the peers retain their point of view that this has to be changed and that UII has to award credits to all compulsory courses and list them in the respective study plans.

The peers appreciate that UII has some collaboration with overseas universities and support students who want to study abroad. They encourage UII to further pursuing this path and to increase its efforts of promoting academic mobility and internationalisation.

The peers confirm that UII has asked the students about their workload, but this should be done systematically, e.g. by including a respective question in the questionnaires. The answers then need to analysed by each programme and adjustments, if necessary, should be implemented. The peers expect UII to provide verification of the procedure and a summary of the results.

The peers consider criterion 2 to be partially fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report
- Module descriptions
- Academic Guidelines

Preliminary assessment and analysis of the peers:
According to the Self-Assessment Report, the students' academic performance is evaluated based on their attendance and participation in class, their laboratory works and reports, assignments, homework, presentations, mid-term exam, and the final exam at the end of each semester. The form and length of each exam is mentioned in the syllabus, which is available to the students via UII's homepage and the digital platform SIMAK.

The written exams can be multiple choice, quizzes, or essays. In addition, there are oral exams, especially for assessing the laboratory work. The students are informed about mid-term and final exams via the Academic Calendar. The final grade is the result of the different activities in the course (e.g. laboratory work, mid-term exam, the final exam, quizzes or other given assignments).

If a student fails, she or he has to repeat the entire module in the following semesters; it is not possible to retake just parts of the course or to retake just the final exam. In addition, UII offers two remedial weeks after each semester for students who want to make up on failed exams, missed classes, or to improve their grades in order to be able to complete the

programme within the allowed period of time. The peers also learn that students have the chance to appeal their grades. The appeal/complaint form is a university wide policy and a standardised process. The further details are described the Academic Guidelines.

The peers discuss with the students how many and what kind of exams they have to take each semester. They learn that for each course there is one mid-term exam and one final exam in every semester. Usually, there are additional practical assignments or oral tests. The final grade is the sum of the sub-exams. The students appreciate that there are a several short exams instead of one big exam and confirm that they are well informed about the examination schedule, the examination form, and the rules for grading.

Because of the small size of the individual modules, the peers point out that the students have only to learn rather small portions for each exam. In addition, the content of the mid-term exams is not necessarily repeated in the final exams. The result of this system is a rather fragmented knowledge about the different subjects. For this reason, larger modules would be favourable, and/or a partial inclusion (repetition) of the mid-term contents in the final exams.

As stipulated in the Academic Guidelines, every student is required to do a final thesis. Prior to the actual research work, students need to prepare a research proposal, which is submitted to the Thesis Advisory Committee. Students are asked to find a suitable topic by discussing with the lecturers, developing own ideas, or joining a lecturer's research project. The student can propose the name of the thesis supervisor and submit the thesis proposal to the Thesis Committee. The Thesis Committee will review the proposal and decide about the supervisor.

Similarly, UII has issued a thesis guideline for the MCSP programme. According to this guideline, students first have to submit a research proposal, which is made with the approval of the thesis supervisor who has been determined by the Head of the MCSP programme. The thesis itself "must show the ability and independence of the student concerned in systemic and multidisciplinary thinking" and contribute "to the development of science, developing theories, policy models, work mechanisms, methods or systems." In addition, before graduation, MCSP students must prove that their submitted research paper, which is based on the thesis, has been accepted by an international journal. The peers appreciate that the Department of Chemistry expects their Master's students to write a scientific paper and to submit it to an international journal (which certainly exceeds common international standards), but it should not be just any "international" journal but a reputable one with a significant impact to the research field. The peers also point out that several international journals have been established that have no real impact but merely

charge a lot of money for publishing papers without a strict peer review system. The Department of Chemistry should decide which journals are acceptable (depending on clearly established criteria) and provide a list of reasonable journals to the students.

Moreover, the peers point out that writing scientific papers is fine, but making the acceptance by an international journal a graduation requirement creates an obstacle, which may prolong the studies significantly if students have to wait until their paper is accepted for publication. It is very ambitious to get a peer reviewed paper accepted in a short period of time, especially if it is the first one. The peers think it would be more time saving and efficient if the teaching staff would give their comments and ratings on the draft version of such a paper – this can be done within a semester and wouldn´t lengthen the study time for the students and they´ll also get a qualified feedback. Therefore, the Department of Chemistry needs to observe how long it takes MCSP students to graduate and if finishing the research project and publishing the results takes longer than expected.

As already mentioned above (criterion 2.1), the peers need to see some sample final projects (not just a research proposal) from the MCSP programme. This is important in order to be able to assess the quality of the academic education and the conducted research activities.

The peers also inspect a sample of examination papers and final theses from the Bachelor's programmes and are overall satisfied with the general quality of the samples.

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

Together with its statement, UII submits two Master's theses. The peers are satisfied with the quality and scientific standard of the samples. For this reason, they see no need to issue a requirement with respect to the scope or quality of the Master's thesis.

Moreover, the peers welcome the reconstruction of the regulation for Master's students to attach an acknowledgement letter of submission from an international journal as one of the graduation requirements instead of asking for a fully published paper.

The peers consider criterion 3 to be fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

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

Preliminary assessment and analysis of the peers:
At UII, the staff members have different academic positions. There are professors, associate professors, assistant professors and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities. For example, a full professor needs to hold a PhD degree. The responsibilities and tasks of a staff member with respect to teaching, research, and supervision depend on the academic position. In addition, there are several supporting non-academic staff members at the Faculty of Mathematics and Natural Sciences; they include administrative staff, laboratory assistants, technicians, and librarians.

The CSP programme is taught by 23 teachers, including 3 professors. The teaching staff of the CESP programme consists of 13 teachers (3 professors, 9 assistant professors, and 1 lecturer). The teaching staff of the MCSP programme includes 10 full time teachers (3 professors, 7 associate professors). All of them hold doctoral degrees. The academic staff of the PSP programme consists of 33 teachers (1 professor, 5 associate professors, 16 assistant professors, and 11 lecturers). According to the Self-Assessment Report, the teaching staff at the Statistics Department consists of 31 full-time teachers (2 professors, 3 associate professors, 24 assistant professors, and 2 lecturers). In total, there are 91 academic staff members at FMNS. However, the peers are missing detailed information about the exact number of teachers in the different departments. For this reason, they ask UII to provide a table detailing how many professors, associate professors, assistant professors, and lecturers are employed by the FMNS. This should include an overview for the whole Faculty and each department and possibly a matrix showing what teacher is teaching in which programme.

All members of the teaching staff are obliged to be involved in the areas (1) teaching/advising, (2) research, and (3) community service. As the peers learn during the audit, all

teachers have a workload between 12 and 16 credits per semester (one credit equals 170 minutes of activities per week). However, the workload can be distributed differently between the three areas from teacher to teacher.

The peers discuss with UII's management, how new staff members are recruited. They learn that every year the faculties and departments announce their vacancies to UII's management. The open positions are then announced publicly. One common way to recruit new teachers is to send promising Master's students abroad to complete their PhD and then to hire them as teachers when they are finished.

In summary, the peers confirm that the number, composition, scientific orientation, and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Report
- Staff handbook
- Discussions during the audit

Preliminary assessment and analysis of the peers:
UII encourages the training of its academic and technical staff with a focus on improving teaching abilities and supporting publications. This is done by providing training in teaching methodologies and publication writing. In addition, young teachers receive coaching, especially for scientific writing, public speaking, and community service. Young staff members with a Master's degree are encouraged to pursue doctoral studies (usually abroad).

The peers discuss with the members of the teaching staff the opportunities to develop their personal skills and learn that the teachers are satisfied with the internal qualification programme at UII, their opportunities to further improving their didactic abilities and to spend some time abroad to attend conferences, workshops or seminars.

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

To keep tack with emerging research trends and scientific progress, however, it is important to constantly develop the proficiency level and research output of the teachers (e.g., by increasing the number of professors). Moreover, being on its way to a research-

oriented department by implementing a Master's degree programme, it becomes more important for the Chemistry Department to hire staff members with a diverse educational background, experiences, and degrees earned from different institutions to ensure a broad perspective.

Criterion 4.3 Funds and equipment

Evidence:

- Self-Assessment Report
- Videos of the facilities
- Discussions during the audit

Preliminary assessment and analysis of the peers:
Basic funding of the degree programmes and the facilities is provided by UII and the Faculty of Mathematics and Natural Sciences. The financial sources are government funding, tuition fees from students, community and industry funding. Additional funds for research activities can be provided by UII or the Indonesian government (Bantuan Pendanaan Perguruan Tinggi Nasional, BPPTN), but the teachers have to apply for them.

The provided budget allows the departments to conduct the study programmes as well as some specific activities, including student exchange programmes, student financial assistance for research, and participation in international conferences. However, the budget is limited and not all projects can be supported. Moreover, the peers did not receive detailed information about the different sources of funding. For this reason, they ask UII to provide information about the amount and share of the different sources of income (government funds, tuition fees, community, and industry).

The academic staff members emphasise that from their point of view, all programmes under review receive sufficient funding for teaching and learning activities. The students confirm this positive impression and state their satisfaction with the available resources.

From the provided documents and videos of the laboratories, the peers deduct that there seem to be no severe bottlenecks due to missing equipment or a lacking infrastructure. The basic technical equipment for teaching the students is available, although it is not state of the art in all cases. The students confirm during the discussion with the peers that in general they are satisfied with the available equipment, only some instruments would be outdated. Moreover, the peers learn during the audit that students can use and operate the instruments in the laboratories by themselves after being trained and instructed by either

senior students or lab technicians. Each laboratory has a lab supervisor; in addition, there are several senior students that work as lab assistants.

Nevertheless, the peers cannot make a final assessment of the quality of the technical equipment and the infrastructure on the basis of the videos and the discussions alone. Only some laboratories are shown in the videos and especially the scope and design of the safety standards remain unclear (material and surface quality of the working benches, safety goggles, gloves, eye showers, fire extinguishers, emergency exits, chemical-proof cabinets, first-aid kits, gloves, ventilation system (quantitative information such as air exchange rates achieved both in the overall lab and in the fume hood would be required), fume hoods, etc.). For this reason, the peers point out that it is necessary to assess the technical infrastructure, safety measures, and facilities onsite at UII. A team of at least one expert together with an ASIIN programme manager should visit FMNS in order to confirm that the infrastructure, the technical equipment and the safety measures meet the required standards. This is especially important for the MCSP programme, because the peers cannot verify from the provided documents and form the discussion during the audit, if the available technical equipment is sufficient for carrying out research activities on a Master's level.

The peer group understands that modern research equipment for sophisticated laboratory work, sufficient in terms of quality and quantity, is not readily available and that the funds are restricted. This is partly compensated by the fact that teachers of UII have the opportunity to use instruments that are available at the central laboratory at Universitas Gadjah Mada, (a renowned public university in Yogyakarta).

Moreover, the peers emphasise that all students need to have the opportunity to get hands on experience with chemicals and carrying out laboratory experiments. For this reason, the number of students conducting one experiment should be reduced. In order to gain sufficient practical experience in the laboratories, groups conducting one experiment should be limited to 2 to 3 students.

The students express their satisfaction with the library and the available literature. The central library that offers direct access to international literature, scientific journals, and publications e.g. via ScienceDirect. From the students' point of view, there is sufficient access to current international literature and databases and a remote access is possible. However, the peers would appreciate if UII would provide access to an additional data base e.g. SciFinder, so that the students would have better access to qualified abstracts of chemical literature.

Besides the already mentioned restrictions, the auditors judge the available funds, the technical equipment, and the infrastructure (laboratories, library, seminar rooms etc.) to comply with the requirements for sustaining the degree programmes.

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

The peers appreciate that the online resources have been considerably expanded to inform about the faculty as well as the study and research conditions in more detail. However, the peers are glad that UII agrees with the necessity of on-site visit, in order to assess the quality of the infrastructure, the facilities, the technical equipment, and the safety measures in the laboratories.

In this context, the peers point out that it would be very useful to have enough instruments and working places so that students can carry out the experiments in groups of two to three in all practical courses. Otherwise, they will not gain sufficient hand-on experience in carrying out practical laboratory work.

The peers consider criterion 4 to be partially fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Self-Assessment Report
- Module handbooks
- Homepage CSP programme: https://www.uii.ac.id/en/find-a-course/b-sc-chemistry/
- Homepage CESP programme: https://www.uii.ac.id/en/find-a-course/b-ed-chemistry-education/
- Homepage MCSP programme: https://www.uii.ac.id/en/find-a-course/master-of-chemistry/
- Homepage PSP programme: https://www.uii.ac.id/en/find-a-course/bachelor-of-pharmacy/
- Homepage SSP programme: https://statistics.uii.ac.id/en

Preliminary assessment and analysis of the peers:

The students, as all other stakeholders, have access to the module descriptions via UII's Indonesian homepage.

After studying the module descriptions, the peers see that the degree programmes all make use of different templates and that the provided information is not complete. For example, the module descriptions do not always make transparent, how each exam contributes to the final grade and what kind of exam is required. In addition, the calculation of the students' total workload and the conversion into credits is either missing or not transparent. Moreover, some module descriptions were not provided by UII. For this reason, it is necessary to submit the complete module handbooks for each degree programme.

In addition, the peers expect UII to redo the module description and to include all necessary information (persons responsible for each module, intended learning outcomes, teaching methods, students' workload, awarded credit points, content, applicability, admission, examination requirements, forms of assessment, and details explaining how the final grade is calculated). A good example is the module handbook for the PSP programme; here all necessary information is included. UII should also use the same template for all module descriptions.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Sample Diploma for each degree programme
- Sample Diploma Supplement for each degree programme

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

The auditors point out that a Diploma Supplement should also include statistical data about the distribution of final grade according to the ECTS Users' Guide. This allows the reader to categorise the individual result. For this reason, the peers ask UII to include this additional information in the Diploma Supplement.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Report
- Homepage CSP programme: https://www.uii.ac.id/en/find-a-course/b-sc-chemistry/
- Homepage CESP programme: https://www.uii.ac.id/en/find-a-course/b-ed-chemistry-education/
- Homepage MCSP programme: https://www.uii.ac.id/en/find-a-course/master-of-chemistry/
- Homepage PSP programme: https://www.uii.ac.id/en/find-a-course/bachelor-of-pharmacy/
- Homepage SSP programme: https://statistics.uii.ac.id/en
- All relevant regulations

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

However, the peers notice that the English websites of the programmes do not include much information. For this reason, the peers encourage UII to update the English websites of the programmes and to include information about the intended learning outcomes, study plans, module descriptions, and academic guidelines of each degree programme and make them thus available to all relevant stakeholders.

In addition, the peers point out that there is no official guideline for disability compensation. It should be regulated how students with special needs can be supported e.g. in attending classes and taking the exams. Since such a regulation does not yet exist, the peers expect UII to draft a regulation for disability compensation of handicapped students.

Finally, the peers point out that there needs to be an official regulation on the recognition of credits acquired abroad (see criterion 2.1).

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

The peers appreciate that UII has updated the module handbooks and the module descriptions now include information about the form of assessment, the composition of the final grade, the students' total workload, and the awarded ECTS points.

In addition, UII now issues a Diploma Supplement that also includes statistical data about the distribution of final grade according to the ECTS Users' Guide.

Finally, UII has updated the programmes' websites, which now include information about the intended learning outcomes, study plans, module descriptions and academic guidelines.

However, the peers point out that UII still needs to draft a guideline for recognising credits achieved outside UII and a guideline for disability compensation. The peers see that UII has a regulation on "Fulfilment of Rights of People with disabilities", but this regulations does not detail what compensation measure are possible e.g. for taking exams.

The peers consider criterion 5 to be mostly fulfilled.

6. Quality management: quality assessment and development

Evidence:

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

Preliminary assessment and analysis of the peers:
The auditors discuss the quality management system at UII with the programme coordinators and the students. They learn that there is a continuous process in order to improve the quality of the degree programmes and it is carried out through internal and external evaluation. The quality assurance system at UII is carried out through internal quality audits (Audit Mutu Internal/AMI). The activities of internal quality audits are coordinated by the Quality Assurance Board (BPM) and conducted once a year. AMI results are presented in management review meetings (RTM) at the faculty and university level. RTM recommendations are used as the basis for changes and continuous quality improvement. The results of internal quality assessments are evaluated on faculty level during the Management Review Meetings (RTM), attended by the dean, vice deans, heads of departments, heads of laboratories, degree programme managements and the Quality Assurance Unit. The RTM takes the final decision on all audit findings and initiates corrective actions if necessary.

Internal evaluation of the quality of the degree programmes is mainly provided through student surveys. The students give their feedback on the courses by filling out the questionnaire online. Giving feedback on the classes is compulsory for the students; otherwise, they cannot access their account on UII's digital platform. The questionnaires are used to monitor and evaluate the learning processes and are distributed every semester to the lecturers before the final exam is done. Students assess various aspects such as reliability, assurance, tangibility, empathy, and responsiveness of the teacher. Students' opinion is quantified by means of index 1 (unsatisfactory) to 4 (excellent). A summary of the students' feedback is sent to the respective lecturers. Based on the results, the programme coordinator and the teachers re-assess every course and possibly some changes are made. If there are negative results, the Department Head invites the concerned teacher to discuss about his or her teaching methods and thus, they are expected to enhance their performance in the future.

The auditors gain the impression that the Departments take the students' feedback seriously and changes are made if necessary. Nevertheless, the peers see that the results of

the course questionnaires are usually not discussed with the students. Consequently, the peers expect UII to inform students about the results of the questionnaires and the teachers should discuss with them about possible improvements in the respective course. The feedback loops need to be closed.

Moreover, students confirm during the audit that they are not represented in the university's boards and, thus, are not directly involved in the decision-making processes. Although, there are student unions in every department whose members regularly meet with the programme coordinators to discuss about problems or other issues concerning the degree programmes. The peers are convinced that it would be very useful to have student members in the different boards. For this reason, they recommend that student representatives should take part at the Management Review Meetings (RTM), be members of boards at UII (at least on programme level, e.g. Task Force of Quality System), and be actively involved in the decision making processes for further developing the degree programmes. There is the students' parliament at UII, but it focuses on organising extracurricular activities and its members are not involved in the academic procedures at their UII. The peers appreciate that student representatives vote on the election of the Deans and the Rector and regularly meet with the Directorate of Student Affairs.

In addition, UII regularly conducts an alumni tracer study. By taking part at this survey, alumni can comment on their educational experiences at UII, the waiting period for employment after graduation, their professional career and can give suggestions how to improve the programme. Moreover, the employers are asked to give feedback to UII on employability and acquired competencies of UII's graduates.

To their graduates finding suitable jobs, UII yearly organises a career day. Partners from companies or public institutions are invited to present themselves on the campus and to attract graduates as employees.

External quality assurance focuses on both national and international accreditations. National accreditation is conducted by the National Accreditation Board for Higher Education (BAN-PT), under the Ministry of Education and Culture, Republic of Indonesia. National accreditation of the programme within the university is a legal obligation for every study programme.

The peers discuss with the representatives of UII's partners from public institutions and private companies if there are regular meetings with the partners on faculty or department level, where they discuss the needs and requirements of the employers and possible changes to the degree programmes. They learn that some employers and alumni invited to give their feedback on the content of the degree programmes, however, only at the Department of Chemistry an Academic Advisory Board exists. In addition, alumni and partners

from the industry are invited to give lectures and to donate money for grants. As the peers consider the input of the employers to be very important for the further improvement of the degree programmes, they appreciate the existing culture of quality assurance with the involvement of employer in the quality assurance process. Nevertheless, they recommend establishing Academic Advisory Boards also at the Department of Statistics and the Department of Pharmacy.

In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programmes.

Final assessment of the peers after the comment of the Higher Education Institution regarding criterion 6:

The peers confirm that students' satisfaction surveys are conducted every semester, but they are not convinced that the results are regularly discussed with the students. For this reason, they expect UII to make sure that all teachers discuss with their students about the results of the questionnaires and what improvements might be possible.

The peers thank UII for pointing out that student representatives are included in the Academic Advisory Boards (DEPERA) at department level. DEPERA consists of representatives of study programmes, lecturers, representatives of students, alumni, and stakeholders. They meet at least once a semester to evaluate learning activities and to suggest improvements. However, the peers still think that is would also be useful that students' representatives take part at the Quality Assurance Management Review Meetings (RTM-SPMU) and that they should be members of the Task Force of Quality System so that they are directly involved in the decision making processes.

The peers consider criterion 6 to be mostly 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:

- How many professors, associate professors, assistant professors, and lecturers are employed by the Faculty of Mathematics and Natural Sciences? Please provide an overview for the Faculty and each department and possibly a matrix showing what teacher is teaching in which programme.
- From which sources derives the funding of UII? What is the share of the different sources (government funds, tuition fees, community, and industry)?
- Complete standardised module handbooks for all degree programmes.
- Final projects MCSP programme.

As detailed in the report, the peers consider it necessary to visit UII in order to get a first-hand impression of the lab equipment, the safety measures, the research infrastructure, and the facilities. In addition, it would be useful to have a face-to-face meeting with the students from all degree programmes and graduates of the MCSP programme.

E Comment of the Higher Education Institution (20.09.2021)

UII provides the following statement:

First, the UII Faculty of Mathematics and Natural Sciences would like to extend its gratitude to all ASIIN committee members and peer reviewers for evaluating the study programmes to be accredited and certified by ASIIN through the visitation.

Regarding the information required in Section D, the task force has managed to complete the documents and online information, including the following:

- Information on lecturers (professors, associate professors, assistant professors, and lecturers) employed by the faculty and their academic positions is provided in **Attachment 1.** The information is also accessible on the following website: https://science.uii.ac.id/lecturers.
- Information on the funding derived by UII is provided **in Attachment 2**.
- All study programmes completed the standardised module handbooks. The documents are provided in **Attachments 3–7**.
- Examples of the final **project (thesis reports) of the MCSP programme are appended (Attachment 8**).

We are also excited to know that ASIIN intends to conduct a site visit to our university. We are convinced that the site visit will result in a more intensive evaluation and chance to enhance the quality of teaching–learning and educational management since it enables face-to-face meetings with lecturers, students, graduates and alumni. In addition, we can show the real laboratory contexts, instrumentation availability and laboratory management on our campus.

Criterion 1.1: Objectives and learning outcomes of a degree programme

All study programmes appreciate the positive comments regarding the objective and learning outcomes of the degree programmes. At the university level, UII has regulations related

to how a study programme's curriculum should be prepared. Moreover, the monitoring of the curriculum is also conducted by the government through several statutes. The intended learning outcomes of the degree programmes are designed to adequately reflect the intended academic qualification level. For example, CESP graduates will work as chemistry teachers, education consultants, tutors in tutoring agencies and chemistry entrepreneurs. Furthermore, 84% of graduates have achieved employment according to the CESP graduate profiles. CESP is always committed to maintaining the quality of graduates through a quality assurance system.

Criterion 1.3: Curriculum

All study programmes would like to express their gratitude for the positive comments from the accreditation panel. CSP appreciates the peer reviewers who suggested increasing the students' experiences in the industry to acquire more soft skills concerning teamwork, communication and presentation. In implementing the curriculum, CSP also offers some supporting activities to encourage students to express their own soft skills via industrial visits, seminars, visiting professors' lectures and industrial experts' lectures.

The memorandum of understanding (MoU) between CSP and its partners was implemented in some activities, including *studium generale* and short courses on specific topics. Inviting practitioners, alumni and experts from other universities and industries to give lectures is routinely conducted as a programme, especially for competence-related courses and elective courses. The positive request from employers related to skill improvement will motivate the study programme to intensify the collaboration between the campus and stakeholders in the future.

SSP are grateful for their peers' compliment of the study programmes regarding the SSP graduates' preparedness to enter the labour market and their high potential to find adequate jobs. Additionally, SSP provides not only academic skills but also practical skills and work attitudes. In fact, we provide a special course for improving practical skills, one of which is the Success Skills course. Concerning the possibility of enhancing experiences outside campus, like CSP, SSP is also committed to enhancing and expanding partnerships with alumni. This also aligns with the university's quality standards. Furthermore, it is useful to

expand the SSP network so that several collaborations can be established, especially internships. The details of the SSP internship can be accessed through the following link: https://statistics.uii.ac.id/en/partnership/.

The visiting lecturer programme featuring data scientists and industry experts was actually a routine programme, but this programme will be more intensively conducted during the upcoming semesters. The aim is to provide an overview for the students regarding the application of statistics in work. Moreover, the SSP is currently evaluating and upgrading the curriculum. The goal is to adjust the learning materials that will be delivered to the students with the current developments.

Especially for CESP, the study programme has collaborated with various partners in the educational and industrial sectors to improve students' soft skills through various activities. Introduction to School Field (PLP) is a compulsory outside-campus activity that needs further improvement to facilitate the students' readiness for real professional work. Moreover, some other strategies, such as guest lectures, industry visits, workshops, project learning, education-based fairs and international seminars, are also programmed. CESP will continue its commitment to facilitating students in gaining school and industrial experience so that their soft skills can be improved.

In general, the request to develop the graduates' skills is in line with the guidance of the Ministry of National Education and Culture to support students in gaining more experience, skills and knowledge outside the campus, which is called Merdeka Belajar-Kampus Merdeka (MBKM). In Bahasa, Merdeka Belajar means Independent Study, and Kampus Merdeka means Freedom Campus. The students have the opportunity to conduct projects, internships and work/professional training at certain times, and the activities will will receive transfer credit. This is regulated by government policy, and the rules for technical implementation are formulated at the university and study program level. All study programmes in the university are now adapting to the curriculum referring to the MBKM programme, which can be accessed online at https://science.uii.ac.id/en/academic-course/guidance-for-mbkm/ (the guidance for which is also available in Attachment 9). In reference to the guidance and rules, every student has the right to study outside campus,

and these activities should be credit transferred. The credit transfer is equivalent to a maximum of 20 credits (34 ECTS).

Criterion 1.4: Admission requirements

All study programmes would like to thank their peers for their appreciation and positive comments. Student admission is managed centrally at the university level under strict conditions. The admissions team upholds objectivity by setting up a tests/evaluation system, equity by permitting all eligible applicants to be admitted, and transparency. The evaluation system also allows the study programme to determine certain requirements. For example, the SSP evaluation system sets a certain score for the test items correlated with the logic and numeric capability of the candidates.

Regarding the internationalisation issue, which is also an important part of the university vision and mission, some scholarship strategies are provided for foreign/international students, for example, the Future Global Leader Scholarship (https://pmb.uii.ac.id/international/scholarship/) and Kemitraan Negara Berkembang (KNB) Scholarship (https://pmb.uii.ac.id/international/knb-scholarship/).

In response to the report in Section 2.1: Structure and Modules

CSP appreciates the peer reviewers who suggested increasing the students' industry experiences to promote softer skills acquisition in teamwork, communication and presentations. In implementing the curriculum, CSP also offers some supporting activities to encourage students to express their own soft skills via industrial visits, seminars, visiting professors' lectures and industrial experts' lectures.

The MoU between CSP and partners is implemented in activities such as *studium generale* and short courses in specific topics. This aligns with the guidance of the Ministry of National Education and Culture, which encourages universities to support students in gaining more experience, skills and knowledge outside the campus. CSP curriculum has a strong focus on analytical chemistry per the demand for chemists in the Indonesian market. Many industries in Indonesia employ chemists for quality assurance purposes, such as the food, cos-

metic, toiletry and drug industries and the forensic fields. In contrast, the demand for biochemistry in the industrial sector is still low; therefore, we focus more on analytical chemistry. Certainly, CSP follows the developmental progress of what industries demand from chemistry graduates.

Additionally, concerning the comment about the low percentage of practical laboratory work, we use the credits as a ratio evaluation, so a small percentage is obtained. In actuality, if the practical load is calculated based on attendance/in-class activities, the percentage of laboratory work is 26.50% in total, while 73.50% is dedicated to theories in class. One credit of practical work of real in-laboratory activities, with self-directed activities excluded. The details of the calculations are presented in Table 1.

Table 1. The workload calculation of the CSP

Courses	Credit	Duration in Hours	Precentage (%)
Theory*	132	1760	73.50
Laboratory Work**	14	634.67	26.50
Total		2394.67	100%
* (132x16x50)/60			
** (14x16x170)/60			

To ensure that the laboratory activities during the practicum fulfil the learning outcomes related to laboratory skills, small groups of students are set up for the lab work. The groups consist of five students, which are further divided into two sub-groups, so there will be some groups conducting work on the same subject. There are also some practicums in which there are only two or three students working together in one group (depending on the number of students in a class). Beyond the sufficient number of instruments in the laboratory, the safety equipment of the laboratory is also an important aspect to which we pay attention.

MCSP does not particularly conduct the course in practice because we follow the general curriculum already structured for the master's degree programme by the Ministry of Education and Culture of Indonesia. Many master's degree programmes offered in Indonesia do not require practical work and primarily focus on a master's thesis, which comprises 25% of the length of study. However, some practical sessions are actually performed as part of the teaching delivery method for some courses. At present, when referring to the

curriculum, there is no compulsory guided practical work. However, some lecturers deliver certain courses via practical activities, for example, in the Electrochemistry Analysis (MK2404) and Catalyst Chemistry (MK2302) courses. Additionally, laboratory work experience with a bachelor's degree can be directly implemented to manage research projects in master's degree programmes. MCSP is more focused so that students can further develop theoretical knowledge on their specific research interests through various teaching and learning activities in the classroom.

To address the request for laboratory skills improvement via structured practical work, the study programme, stakeholders and lecturers have already discussed the possibility of enhancing the delivery method of the Research Design and Publication (MK2602) course through a mixed-mode delivery: course and laboratory work. The module handbook and practical guidance designed for the next teaching–learning activities in the course are attached (**Attachment 10 and Attachment 11**). The course will be composed of 12.4 ECTS points. Class attendance comprises four meetings for 3 hours, and the laboratory activities are 15 hours per week for 12 weeks. The total time, including self-directed studies, is about 372 hours. For advanced practical work, MCSP students will operate instrumental analysis and perform data interpretation by conducting a mini-project in the laboratory based on their research interests and then summarise the findings and disseminate the research report in the classroom.

SSP would like to thank the peer reviewers for their suggestions regarding the content of our courses. The material suggested has actually been taught to the students, but it is not specifically written in the module handbook. Therefore, SSP UII revised the module handbook so that the material was also included there. Some of the courses seem to coincide, but they are only presented as a review to prepare for further study of the material so that students can understand the material that will be delivered later. Now, as scheduled by the study programme's roadmap, SSP is conducting a curriculum review to develop new curriculum. In the new curriculum, the distribution of some courses has been adjusted. Some of the courses that were previously given in the final semester have been moved one or two semesters earlier, with the consideration that in the first five semesters, SSP students must

have all the necessary basic skills in statistics. Therefore, in the sixth and subsequent semesters, students are ready for internships and final assignments. In the current SSP curriculum, besides the practicum, where the learning process is a practical session, there are some courses with inclusive practical sessions during lectures, rather than being theoretical only. This has been implemented to support the practical work skills of the students and part of the technique competence for the ENTHUSIASTIC learning outcome. These courses include Database (2 credits), Sampling Techniques (3 credits), Applied Regression Analysis (2 credits), Geographic Information Systems (3 credits), Statistical Quality Control (3 credits) and Design of Experiment (3 credits). Some of these courses are also taught in relation to statistical software applications to complete case studies.

The total theory credits with technique competence comprise 16 credits. If the practicum course credits are combined with technique competency, there is a total of 26 credits or 18.7% of all credits that will be taken by the students (not including the final project). All practicum activities conducted by SSP utilise a computer or laptop (not using chemicals) equipped with some licensed software, and every student has free and independent access. This system ensures that every student will be provided with direct learning related to statistical data analysis using the software.

The infrastructure of the laboratory is appropriate, as there are safety lines in all laboratory areas, a laboratory map, a fire safety system including an alarm, a safety map of meeting points and a fire extinguisher, as well as sufficient fume hoods and exhaust in every room. The safety aspects related to chemical transport are also monitored by an online system (SIMLAB), and all chemicals are stored in a chemical storage room. Such laboratory regulations, including safety regulations, are set up by the laboratory coordinator at the department level, so the same standards for practicum, research and other laboratory-related activities for all study programmes within the same department are applied.

As a manifestation of UII values, some activities are embedded in the curricula of all study programs. This means that internal values should be conducted and broken down in mandatory classes, but no credits should be awarded, as they are restricted by the total credits for students to finish their study. Students' activities, such as Islamic Boarding, Al-Quran

Reading and Writing, are activities designed to strengthen student character. Based on the Rector's Regulation No. 24 of 2019, student participation is recognised in the form of participation credit units (PCU) and will be listed in the Diploma Supplement. Undergraduate students are required to take part in a student activity programme with a weight of 50 PCU. PCU is a form of appreciation for student activities; the participation load of one PCU is equivalent to 240 minutes (4 hours) per semester (20 weeks), which is equivalent to 0.15 ECTS. The complete list of PCU credits can be accessed here: https://chemistryeducation.uii.ac.id/en/courses/#toggle-id-10. The accumulative PCU is then awarded to students in the Diploma Supplement (known as SKPI, SURAT KETERANGAN PENDAMPING IJAZAH). Since the implementation, monitoring and evaluation are conducted by the academic team at the university level, the activities are placed in a timeline that will not burden the student's workload.

Concerning international mobility issues, there are some international mobility programmes conducted at the university level as well as some at the study programs level. Example strategies include the Indonesian International Student Mobility Award at the university level (https://kemahasiswaan.uii.ac.id/uii-iisma-indonesian-international-student-mobility-award/) and the Passage to ASEAN and the SEA-Teacher programme at the university level. At the study programme level, some mutual collaboration between overseas universities is effectively applied and utilised for mobility activities. SSP, CSP and CESP also facilitate students who want to study abroad by socialising with various activities and facilities that students can use for studying abroad and vice versa. Additionally, SSP has also made an activity plan in 2022 regarding the improvement and expansion of the global partnership programme. SSP has started and plans to collaborate with several universities, such as the University of Western Ontario (Canada), TU Graz (Austria) and Jadavpur University (India). The collaboration includes student exchange, lecturer exchange, research, further studies, double degrees and joint teaching and supervision. The implementation of international classes in PSP starting in the 2021 academic year and SSP in 2022 are important strategies for this activity plan. At the faculty level, beginning international classes is one of the strategic plans for development, so all study programmes in the FMNS will have such programmes to foster staff and student mobility.

As many academic mobility activities are performed by staff and students from all study programmes at FMNS, the most important factor detaining mobility activities is the Covid-19 pandemic, which has restricted people's mobility. For example, before the Covid-19 pandemic, there were joint international academic activities with the partners, such as joint international seminars, research collaborations, joint supervising and seat-in (transfer credits). Table 2 lists some activities that have been cooperatively conducted for international mobility.

Table 1. CSP international mobility activities

Partner	**Duration of the activity**	**Kind of activity**	**Year**	**Number of staff/student involved**
University Malaya, Malaysia	1 week	Benchmarking for RSC accreditation	2017	8
Prince Songkla University	1 semester	Seat in (credit transfer)	2018	15
Kansai University, Japan	2 month	Research visit and joint supervising for students	2019	2
Kansai University, Japan	3 weeks	Research visit and joint research for staff	2019	2
National Tsing Hua University, Taiwan	3 weeks	Research visit and joint research for staff	2019	2
Universiti Tunku Abdul Rahman, Malaysia	1 month	Research visit and joint supervising for students	2018	5

Universiti Tunku Abdul Rahman, Malaysia	1 month	Research visit and joint research for staff	2018	1
Hokkaido University (Japan) for joint research	2 weeks	Research visit and joint research for staff	2019	3
Universiti Teknologi MARA, Malaysia	3 weeks	Joint lecture program and summer school program	2020	4

Besides these activities, there are some other activities with international university partners for student competition activities, such as in Quest International University, Malaysia, Universiti Kebangsaan Malaysia and some other universities in Korea, Turkey and Malaysia. Through the pandemic, online mobility activities have still been continued through joint workshops and seminars, joint supervising and joint teaching. Some CSP students are now following the credit transfer programme at Mapua University, Philippines.

In particular, for CESP, as a study programme that produces teachers as graduates, CESP provides students with the opportunity to gain global experience as teachers in a Southeast Asian country through the SEA-Teacher program. In addition, CESP already has guidelines for SEA-Teacher programme transfer credits, which are routinely carried out twice a year. Information about the SEA-Teacher Programme can be accessed at https://chemistryeducation.uii.ac.id/students-mobility/. The guidelines for SEA-Teacher credit transfers can be seen in **Attachment 12**.

Criterion 2.2: Workload

All study programmes have adopted regulations at both the national and the university level. The regulations at the university level are actually based on the regulations at the national level considering some other aspects. One of the regulations related to academic

processes can be seen here: https://science.uii.ac.id/wp-content/uploads/Regulations-for-Learning-Processes.pdf.

Based on the regulations, one credit of coursework is equal to 170 minutes per week per semester. This comprises 50 minutes of in-class/meeting activity, 60 minutes of structured tasks and 60 minutes of self-directed activities. One semester consists of 16 weeks, including a midterm and a final exam. Based on this perspective, with 1 credit (1 ECTS) corresponding to 27 hours of learning activities, 1 credit (1 SKS) in our curriculum is proportional to 1.7 credits (ECTS). Especially for the practicum, professional training, final project in the bachelor's programme and thesis activities in MCSP, the workload calculation is based on the real required time. For example, for chemistry laboratory activities in CSP, CESP and MCSP, one credit is equal to 3 hours of laboratory activity (see details in Table 1). In the other scheme, one credit of practicum in the SSP corresponds to 100 minutes of activity for 10 meetings (see details in **Attachment 13.**).

From the MCSP side, in the recent curriculum, besides the Tesearch Thesis (course) and Thesis, there is the Thesis Proposal and Preliminary Research (2 credits) course in the second semester. This course consists of laboratory work, self-directed studies and seminar activities. The laboratory work comprises about 4 hours per week for 8 weeks, and the writing proposal covers 8 weeks, comprising about 15 ECTS points. The Research for Thesis activity is performed in the third semester and comprises 24 ECTS points. The laboratory activities take 5 hours per week during the 16-week course. The total time, including self-directed studies, is about 640 hours. As a final assignment in the fourth semester, the thesis includes laboratory activities of about 40 hours per week for 16 weeks and other self-directed studies and seminars. Based on the workloads in a single semester, it is actually about 900 hours of activity, proportional to 30 ECTS points. Referring to the adaptation of the research design and publication teaching method, the justification for the workload of each course in recent conditions and planned conditions is presented in **Attachment 14**.

The CESP estimated the workload based on the calculation of the comparison through the questionnaire (https://chemistryeducation.uii.ac.id/en/courses/). It can be calculated that the practical/laboratory work workloads are about 23% (excluding the field introduction of

the school and thesis) of all courses (https://chemistryeducation.uii.ac.id/en/courses/#toggle-id-12). The description of the study plan for CESP is attached in **Attachment 15**. The module handbooks of the study programs can be accessed:

- For SSP: https://statistics.uii.ac.id/en/module-handbook/
- For CSP: https://chemistry.uii.ac.id/Module%20Handbook_Pdf/Module%20Handbook%20CSP.pdf
- For PSP: https://sarjana.pharmacy.uii.ac.id/courses_new/
- For CESP:
- For MCSP: https://chemistry.uii.ac.id/master/index.php/module/

Additionally, FMNS surveyed students regarding whether the workload met their expectations. The questionnaire is available here: https://science.uii.ac.id/en/questionnaire/. The results showed that more than 80% of the students stated that the workload was appropriate. The students' satisfaction with the workload was categorised as quite satisfied – very satisfied. The results of monitoring can be seen here: https://science.uii.ac.id/wp-content/uploads/Quisionner-Workdload.pdf, and schematically, the results can be summarised in Figure 1.

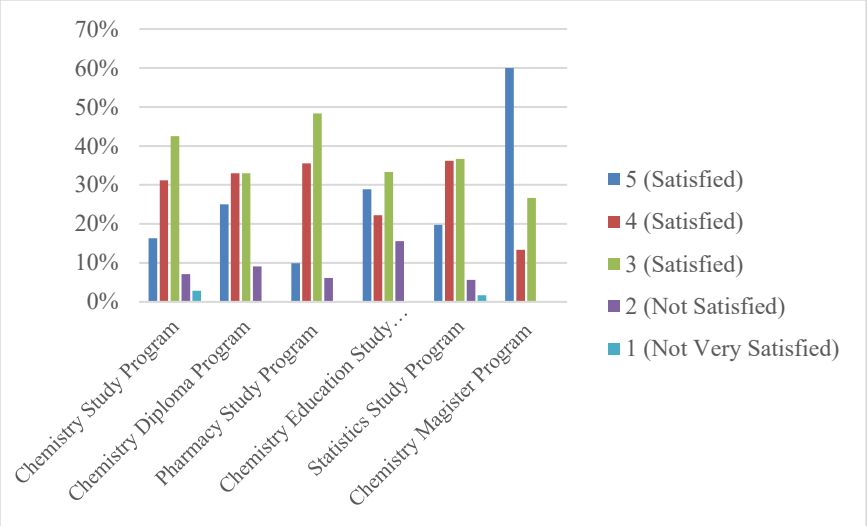

Figure 1. Results from Survey on Students Workloads Satisfaction

Even though the majority of students responded that they were satisfied with the workloads, from the graph, it can be seen that there were some students who were not very

satisfied and not satisfied with the workloads. This situation may be related to the adaptation to the online courses conducted within the last three semesters. This assumption also aligns with the questionnaire conducted by the Academic Board at the university level, which showed that the online mode of the teaching–learning process influenced some students, in particular the students living in remote areas of Indonesia. The faculty and study programmes have tried to solve this problem by coordinating with academic advisors and curriculum teams in the study programs. The role of the academic advisor for each student is vital to gather input from students and provide them with a solution and motivation.

Criterion 2.3: Teaching Methodology

All study programmes had carried out online and blended learning processes even before the COVID-19 pandemic began. Thus, when the Covid-19 pandemic occurred, not all faculty members experienced difficulties in conducting their lectures. To support laboratory activities, accessible, calibrated and certified instrumentations are available. Some important chemistry instruments, such as XRD, FTIR, NMR, SEM-EDX, HPLC, GC-MS and GSA, are in good condition and accessible. Almost all instruments are available for hands-on use by students and are regularly calibrated based on ISO 17025/2017.

At the time of the ASIIN visitation, there were no data related to the MCSP graduates because MCSP is a new study program. However, now, some MCSP students have already completed their final theses and will finish their studies immediately after conducting the thesis defence. As suggested by our peers, we have attached the thesis samples in **Attachment 8**.

Criterion 3 exams: System, concept and organisation

Larger modules are possible in SSP, although they are still small-sized modules now. Regarding students' mastery of lecture materials, SSP concepts and systems are carried out per the Course Outline (CO). It is therefore seen that the COs measured in the midterm and final exams are different COs. However, the CO that has been tested at UTS can also reappear in the final exam, but not directly. This is because to be able to do the final exam, the

foundation is the CO, which was tested at the midterm exam. Currently, the SSP is conducting an evaluation of the curriculum, including the concept and examination system. In this case, it is planned that the final exam will continue to issue questions that measure the CO in the midterm for that course.

MCSP expects that students will be able to publish their research easily in international journals. However, we also believe that publication takes a long time in reputable journals with a high impact factor due to the selective peer review process and that students will be charged a lot of money. Therefore, MCSP has reconstructed a regulation for students to attach an acknowledgement letter of submission from an international journal as one of the graduation requirements.

Criterion 4.1: Staff

The academic staff of FMNS are presented in **Attachment 1** and can also be accessed at https://science.uii.ac.id/lecturers.

Criterion 4.3: Funds and equipment

It can be stated that in general, there is no serious problem related to funding for infrastructure and routine activities. All study programmes receive sufficient and well-monitored funding for teaching and learning activities. Additionally, related to the question about funding sources, about 66% of funding comes from students' tuition fees, and the rest comes from business units and external grants (including from national and international foundations). Figure 2 depicts the incoming funding for 2020, with the details presented in Attachment 2. The funding conditions appropriately support all study programmes to continue their development with respect to the roadmap, vision and mission; at the university and foundation level, the proportion of funding from sources other than students' tuition fees will be improved by many strategies.

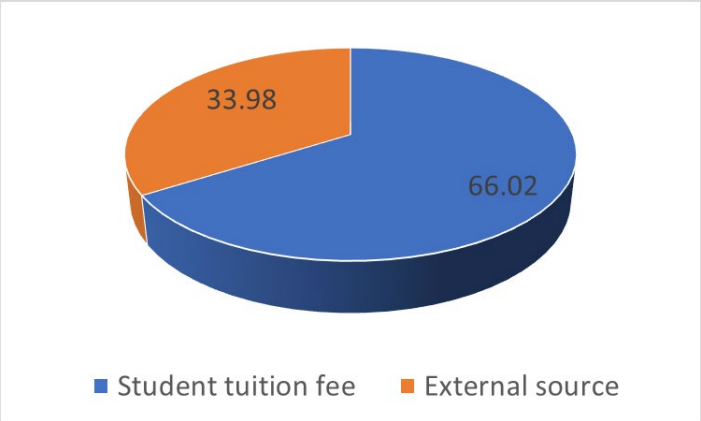

Figure 2. Funding Source of UII

The profile of the FMNS facilities that is utilised for all study programme staff and students can be seen here: https://science.uii.ac.id/en/campus-facilities/. The important instrumentations in all laboratories can be seen here: https://science.uii.ac.id/en/laboratory-instruments/ (Attachment 16).

Criterion 5: Funding

We thank our peers for pointing this out. As suggested, all study programmes have revised the module handbooks, complete with more detailed information about the persons responsible, the intended learning outcomes, the teaching methods, the students' workloads, awarded credit points, content, applicability, admissions, examination requirements, forms of assessment and final grades in the module descriptions for each course.

Criterion 5.2: Diploma and Diploma Supplement

All study programmes thank their peers for their suggestions regarding the Diploma Supplement. Following up on these suggestions, we have improved the contents of the Diploma Supplement by adding statistical data about the final grades distribution, which can be seen here: https://science.uii.ac.id/en/academic-course/#toggle-id-3.

Criterion 5.3: Relevant rules

We appreciate the recommendation. The websites of all study programmes have been updated with relevant information for clearer and more relevant rules, mainly the information in the English version. The websites of the study programmes are as follows:

- SSP: https://statistics.uii.ac.id/en/
- PSP: https://sarjana.pharmacy.uii.ac.id/en/
- CSP: https://chemistry.uii.ac.id/en/
- CESP: https://chemistryeducation.uii.ac.id/en/
- MCSP: https://chemistry.uii.ac.id/master/index.php/beranda-en2/

The websites include all information about the intended learning outcomes, study plans, module descriptions and academic guidelines. Other more general regulations related to student exchange programmes, guidelines for assessing the learning outcomes of undergraduate and diploma programme students and the education and learning processes at UII are available here: https://science.uii.ac.id/wp-content/uploads/Regulations-for-Learning-Outcome.pdf.

We are pleased to inform you that the regulations for the disability compensation of handicapped students has been established following Rector Regulation No. 12/2021 concerning the fulfilment of the rights of persons with disabilities. Every person with a disability in FMNS receives proper accommodations for their disability rights, and there is no discrimination against persons with disabilities, especially regarding participating in the learning process at FMNS. FMNS also provides several support facilities for people with disabilities, such as elevators, descent roads and special bathrooms for people with disabilities. Such regulations related to the fulfilment of the rights of people with disabilities at UII are available online at: https://science.uii.ac.id/wp-content/uploads/Regulations-for-Disabilities.pdf.

The information on campus facilities, faculty facilities and virtual journeys to laboratories are also provided at the following sites:

- https://science.uii.ac.id/en/campus-facilities/
- https://science.uii.ac.id/faculty-facilities/

- https://science.uii.ac.id/en/virtual-journey-in-laboratory/

Criterion 6: Quality management: Quality assessment and development

The teaching–learning evaluation through the questionnaires is actually conducted every semester for all courses and practicums by faculty. The questionnaires cover satisfaction scores, suggestions and criticisms for lecturers. The results of the questionnaires are discussed by each lecturer in charge of practicum courses. This allows students to be involved in quality monitoring, including filling out service and facility quality assessments, as well as lecturer performance in teaching.

A centralised questionnaire system is applied in the academic division of the faculty and can be accessed here: https://nkmd.science.uii.ac.id/. Further, for the CESP programme, it can be accessed here: https://chemistryeducation.uii.ac.id/assessment-of-satisfaction-with-lecturer-performance-in-teaching/. At the end of the semester, students fill out a questionnaire related to their workload. The results of the questionnaires are disseminated through: https://chemistryeducation.uii.ac.id/en/courses/. For PSP, the information can be viewed at: https://sarjana.pharmacy.uii.ac.id/lecturers-teaching-performance/.

Furthermore, student representatives are included in the structure of the Academic Advisory Boards (DEPERA) at the department level. DEPERA consists of representatives of study programmes, lecturers in areas of expertise, representatives of alumni users/stakeholders, representatives of students and representatives of alumni. DEPERA has the obligation to monitor and suggest study programme improvements through at least one semesterly meeting to evaluate learning activities. Thus, there are already students involved in the evaluation of learning. In addition, the DEPERA meeting also concerns the achievement of the quality standards, so student representatives may provide suggestions related to improving the school's achievement of these quality standards. The decrees of DEPERA for each department are provided in Attachments 17–19.

F Summary: Peer recommendations (11.10.2021)

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemistry	With requirements for one year	-	30.09.2027
Ba Chemistry Education	With requirements for one year	-	30.09.2027
Ma Chemistry	With requirements for one year	-	30.09.2027
Ba Pharmacy	With requirements for one year	-	30.09.2027
Ba Statistics	With requirements for one year	-	30.09.2027

Requirements

For all degree programmes

A 1. (ASIIN 2.1) Award credits to all compulsory courses and list them in the study plans.

A 2. (ASIIN 2.2) Make sure that the awarded ECTS points comply with the students' total workload.

A 3. (ASIIN 4.3) It is necessary to visit and assess the technical infrastructure, safety measures, and facilities onsite at UII.

A 4. (ASIIN 5.3) Draft a guideline for recognising credits achieved outside UII.

A 5. (ASIIN 5.3) Draft a guideline for disability compensation.

A 6. (ASIIN 6) Close the feedback cycles and make sure that all teachers discuss with their students about the results of the questionnaires and what changes might be possible.

For the Master's programme

A 7. (ASIIN 2.1) It is necessary to introduce compulsory advanced laboratory courses covering a broad range of advanced practical competencies in order to impart the competencies that are necessary for conducting independent research activities and the Master's thesis.

Recommendations

For all degree programmes

E 1. (ASIIN 2.1) It is recommended to further promote the academic mobility of the students and to cooperate with more renowned international universities.

E 2. (ASIIN 4.3) It is strongly recommended to increase the scope of practical laboratory work and to provide enough technical equipment so that experiments can be done by groups of 2 to 3 students.

E 3. (ASIIN 6) It is recommended to make student representatives members of the respective boards at UII and to directly involve them in the decision making processes for further developing the degree programmes.

For the Bachelor's programmes Chemistry and Statistics

E 4. (ASIIN 2.1) It is recommended to provide students with more experience in the industry and should have more soft skills with respect to team leading, presentation, and communication.

G Comment of the Technical Committees (24.11.2021)

Technical Committee 09 – Chemistry, Pharmacy (23.11.2021)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedure, which was carried out as an online procedure at the end of June.

The points of criticism of the peers refer to formal aspects (Diploma Supplement, module descriptions, Lisbon Convention), to the low academic mobility, the calculation of the student workload, and the scope of practical laboratory work. Overall, the Technical Committee agrees with the vote of the peer group.

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemistry	With requirements for one year	-	30.09.2027
Ba Chemistry Education	With requirements for one year	-	30.09.2027
Ma Chemistry	With requirements for one year	-	30.09.2027
Ba Pharmacy	With requirements for one year	-	30.09.2027
Ba Statistics	With requirements for one year	-	30.09.2027

Technical Committee 12 – Mathematics (24.11.2021)

Assessment and analysis for the award of the ASIIN seal:

The Bachelor's degree programme in Statistics is part of a cluster of chemistry and pharmacy degree programmes at Universitas Islam Indonesia. It is seen that the peers were

basically satisfied with the programme and only criticised a number of formal aspects, for example that not all compulsory modules are credited, the workload does not correspond to the credit points awarded or that there are no guidelines for compensation of disadvantages. Since the technical infrastructure could not be sufficiently presented during the online audit, a follow-up inspection must be carried out at the university.

The Technical Committee discusses the procedure and agrees with the peers' assessment. It only corrects the syntax of recommendation E4.

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

Degree Programme	**ASIIN-seal**	**Subject-specific label**	**Maximum duration of accreditation**
Ba Chemistry	With requirements for one year	-	30.09.2027
Ba Chemistry Education	With requirements for one year	-	30.09.2027
Ma Chemistry	With requirements for one year	-	30.09.2027
Ba Pharmacy	With requirements for one year	-	30.09.2027
Ba Statistics	With requirements for one year	-	30.09.2027

H Decision of the Accreditation Commission (07.12.2021)

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

The Accreditation Commission discusses the procedure, especially the role of Islam at the University and the related values. Since the university is open for students from all different beliefs and the scientific nature of the degree programmes is not called into question, there are no objections to an accreditation with the ASIIN seal in this respect. In summary, the Accreditation Commission follows the peers' assessment.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemistry	With requirements for one year	-	30.09.2027
Ba Chemistry Education	With requirements for one year	-	30.09.2027
Ma Chemistry	With requirements for one year		30.09.2027
Ba Pharmacy	With requirements for one year		30.09.2027
Ba Statistics	With requirements for one year		30.09.2027

Requirements

For all degree programmes

A 1. (ASIIN 2.1) Award credits to all compulsory courses and list them in the study plans.

A 2. (ASIIN 2.2) Make sure that the awarded ECTS points comply with the students' total workload.

A 3. (ASIIN 4.3) It is necessary to visit and assess the technical infrastructure, safety measures, and facilities onsite at UII.

A 4. (ASIIN 5.3) Draft a guideline for recognising credits achieved outside UII.

A 5. (ASIIN 5.3) Draft a guideline for disability compensation.

A 6. (ASIIN 6) Close the feedback cycles and make sure that all teachers discuss with their students about the results of the questionnaires and what changes might be possible.

For the Master's programme

A 7. (ASIIN 2.1) It is necessary to introduce compulsory advanced laboratory courses covering a broad range of advanced practical competencies in order to impart the competencies that are necessary for conducting independent research activities and the Master's thesis.

Recommendations

For all degree programmes

E 1. (ASIIN 2.1) It is recommended to further promote the academic mobility of the students and to cooperate with more renowned international universities.

E 2. (ASIIN 4.3) It is strongly recommended to increase the scope of practical laboratory work and to provide enough technical equipment so that experiments can be done by groups of 2 to 3 students.

E 3. (ASIIN 6) It is recommended to make student representatives members of the respective boards at UII and to directly involve them in the decision making processes for further developing the degree programmes.

For the Bachelor's programmes Chemistry and Statistics

E 4. (ASIIN 2.1) It is recommended to provide students with more experience in the industry and more soft skills with respect to team leading, presentation, and communication.

I Fulfilment of Requirements (09.12.2022)

Analysis of the peers and the Technical Committees (22.11.2022)

Requirements

A 1. (ASIIN 2.1) Award credits to all compulsory courses and list them in the study plans.

Initial Treatment	
Peers	Fulfilled Vote: unanimous Justification: Module descriptions have been updated and significantly improved. In particular, the Ma Chemistry programme now also outlines the ECTS awarded for the research work needed to prepare the final thesis.
TC 09	Fulfilled. Vote: unanimous. Justification: The TC follows the peers' assessment.
TC 12	Fulfilled. Vote: unanimous. Justification: The TC agrees with the opinion of the expert panel.

A 2. (ASIIN 2.2) Make sure that the awarded ECTS points comply with the students' total workload.

Initial Treatment	
Peers	Fulfilled Vote: unanimous Justification: As requested by the peers, the workload is now much better broken down to the different types of activities (lectures, self-study, practical work, etc.). A fixed factor is still used to convert from the Indonesian SKS credit system to ECTS – despite the fact the both credit awarding systems are not fully compatible. The correct way is to define how many hours of students' workload are required for one ECTS point (usually between 25 and 30). This rate needs to be fixed and the same for each course. Then the students' total workload needs to be divided by that number. However, the awarded credits more or less reflect the actual workload and the overall workload complies with international standards.
TC 09	Fulfilled.

	Vote: unanimous. Justification: The TC follows the peers' assessment.
TC 12	Fulfilled. Vote: unanimous. Justification: The TC agrees with the opinion of the expert panel.

A 3. (ASIIN 4.3) It is necessary to visit and assess the technical infrastructure, safety measures, and facilities onsite at UII.

Initial Treatment	
Peers	Fulfilled Vote: unanimous Justification: A member of the peer group has visited the facilities at UII and documented the visit in a video and a report. The peers confirm that the technical infrastructure, safety measures, and facilities are adequate for running the degree programmes.
TC 09	Fulfilled. Vote: unanimous. Justification: The TC follows the peers' assessment.
TC 12	Fulfilled. Vote: unanimous. Justification: The TC agrees with the opinion of the expert panel.
AC	Fulfilled/not fulfilled Vote: unanimous/per majority Justification:

A 4. (ASIIN 5.3) Draft a guideline for recognising credits achieved outside UII.

Initial Treatment	
Peers	Fulfilled Vote: unanimous Justification: The study programmes have implemented regulations to recognize credits for study work conducted outside UII. This involves regulations to transfer credits for attended courses during research stays at partner universities as well as internships at non-university institutions.
TC 09	Fulfilled. Vote: unanimous. Justification: The TC follows the peers' assessment.
TC 12	Fulfilled. Vote: unanimous. Justification: The TC agrees with the opinion of the expert panel.

A 5. (ASIIN 5.3) Draft a guideline for disability compensation.

Initial Treatment	
Peers	Fulfilled Vote: unanimous Justification: A guideline is now available that summarizes the disability regulations and services on University and Faculty level.
TC 09	Fulfilled. Vote: unanimous. Justification: The TC follows the peers' assessment.
TC 12	Fulfilled. Vote: unanimous. Justification: The TC agrees with the opinion of the expert panel.

A 6. (ASIIN 6) Close the feedback cycles and make sure that all teachers discuss with their students about the results of the questionnaires and what changes might be possible.

Initial Treatment	
Peers	Fulfilled Vote: unanimous Justification: UII has implemented quality management regulations; student feedback is mainly based on questionnaires. In the documentation, the different study programmes give some examples for the actual practice of evaluation.
TC 09	Fulfilled. Vote: unanimous. Justification: The TC follows the peers' assessment.
TC 12	Fulfilled. Vote: unanimous. Justification: The TC agrees with the opinion of the expert panel.

For the Master's programme

A 7. (ASIIN 2.1) It is necessary to introduce compulsory advanced laboratory courses covering a broad range of advanced practical competencies in order to impart the competencies that are necessary for conducting independent research activities and the Master's thesis.

Initial Treatment	
Peers	not fulfilled Vote: unanimous

	Justification: UII did not provide any information about the introduction of compulsory advanced laboratory courses to the curriculum of the Master's programme. According to the module description, topics such as "Instrument Chemistry", "Electrochemical Analysis", or "Synthesis of Organic and Inorganic Chemistry" are taught on a theoretical level only. It is still not clear if such modules also contain practical work.
TC 09	Fulfilled. Vote: unanimous. Justification: The TC follows the peers' assessment.

Decision of the Accreditation Commission (09.12.2022)

The AC decides that all requirements with the exception of A7 for the Master's degree programme Chemistry are fulfilled.

With respect to A7, the ACU sees that UII did not provide any information about the introduction of compulsory advanced laboratory courses to the curriculum of the Master's programme. According to the module descriptions, topics such as "Instrument Chemistry", "Electrochemical Analysis", or "Synthesis of Organic and Inorganic Chemistry" are taught on a theoretical level only. It is still not clear if such modules also contain practical work.

The Accreditation Commission decides to award the following seals:

Degree Programme	**ASIIN seal**	**Subject-specific labels**	**Maximum duration of accreditation**
Ba Chemistry	All requirements fulfilled	-	30.09.2027
Ba Chemistry Education	All requirements fulfilled	-	30.09.2027
Ma Chemistry	Requirement A7 not fulfilled	-	prolongation for six months
Ba Pharmacy	All requirements fulfilled	-	30.09.2027
Ba Statistics	All requirements fulfilled		30.09.2027

J Fulfilment of Requirements (23.06.2023)

Analysis of the peers and the Technical Committees (12.06.2023)

Requirements

For the Master's programme

A 7. (ASIIN 2.1) It is necessary to introduce compulsory advanced laboratory courses covering a broad range of advanced practical competencies in order to impart the competencies that are necessary for conducting independent research activities and the Master's thesis.

Initial Treatment	
Peers	not fulfilled Vote: unanimous Justification: UII did not provide any information about the introduction of compulsory advanced laboratory courses to the curriculum of the Master's programme. According to the module description, topics such as "Instrument Chemistry", "Electrochemical Analysis", or "Synthesis of Organic and Inorganic Chemistry" are taught on a theoretical level only. It is still not clear if such modules also contain practical work.
TC 09	Not Fulfilled. Vote: unanimous. Justification: The TC follows the peers' assessment.
AC	Not fulfilled Vote: unanimous Justification: UII did not provide any information about the introduction of compulsory advanced laboratory courses to the curriculum of the Master's programme. According to the module descriptions, topics such as "Instrument Chemistry", "Electrochemical Analysis", or "Synthesis of Organic and Inorganic Chemistry" are taught on a theoretical level only. It is still not clear if such modules also contain practical work.
Second Treatment	
Peers	Fulfilled Vote: per majority Justification: UII has provided an updated module handbook, lab instruction manuals, and sample lab reports for experiments that

	are performed by M.Sc. Chemistry students. These documents show that advanced experimentation is part of the training in the master's program. All three modules 'Synthesis in Organic and Inorganic Chemistry', 'Instrumental Chemistry', and 'Electrochemical Analysis' comprise laboratory work, e.g., the synthesis of organic and inorganic compounds, instrumental work on NMR- and X-RAY spectroscopy, and quantitative analysis using state-of-the art electrochemical methods. One expert is not satisfied with the scope of practical training, because practical teaching is far away from international standards, and no reaction to the suggestions of peers is visible. This is also in line with the observation of the virtual lab tour: many nice instruments are available, but most of them were unused and even not connected.
TC 09	Fulfilled Vote: unanimous Justification: The university has submitted further documentation to demonstrate that advanced practice modules have been integrated into the master's programme. The majority of the expert group is satisfied with the submitted documentation and considers the requirement to have been met. However, one expert feels that the expert group's suggestions have not been adequately addressed and that the existing tools in the laboratories are not being used. The Technical Committee briefly discusses the procedure and agrees with the assessment that the university should still improve the practical training and therefore proposes to consider the requirement as fulfilled, but to shorten the accreditation period to three years. During the reaccreditation, the practical laboratory activities of the master's students and the use of the instruments in the practical courses should then be examined in particular. A corresponding note should be included in the cover letter to the university.

Decision of the Accreditation Commission (23.06.2023)

The AC decides that all requirements are fulfilled.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Ma Chemistry	All requirements fulfilled*	-	30.09.2025

*Indication in the decision letter:

Practical teaching should be further increased to match international standards. The laboratory equipment is fine but needs to be better used by the students for conducting experiments.

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Chemistry:

No.	Symbol	Attribute	Derivation of the program learning outcomes (PLOs) in learning competencies				Description of the PLO	Code	Aspect of Subject-Specific Criteria (SSC)
			Attitude	Knowledge	Specific skills	General skills			
1.	E	Ethics and integrity	√	√			Have consistency and enthusiasm in realizing positive and Islamic attitudes and behaviors	PLO1	Social competence
2.	S	Self-esteem and marketing	√	√		√	Capable to develop and market themselves sustainably to be able to work and contribute in the area of essential oil development, material for energy and environment, and natural product for food and health	PLO2	Specialist competence
3.	S	Student of tomorrow		√	√	√	Endeavor to continue to study (lifelong learning) at a higher level in the relevant field with the chemistry of essential oil development, materials for energy and the environment, and natural products for food and health	PLO3	Specialist competence
4.	E	Entrepreneurs hip and employability	√		√	√	Have the skills to work independently or gain a decent, opportunity-oriented job in the area of essential oil development, materials for energy and the environment, and natural products for food and health	PLO4	Social competence
5.	N	New and novel idea		√	√		Have capability and proficiency in critical thinking and problem solving and develop new ideas in the field of essential oil	PLO5	Specialist competence

No.	Symbol	Attribute	Derivation of the program learning outcomes (PLOs) in learning competencies				Description of the PLO	Code	Aspect of Subject-Specific Criteria (SSC)
			Attitude	Knowledge	Specific skills	General skills			
							development, materials for energy and the environment, and natural products for food and health		
6.	T	Teamwork and leadership	√			√	Have leadership skills and productive attitudes toward cooperating (collaborating) or interacting with others in many levels of challenge	PLO6	Social competence
7.	I	Information management		√	√	√	Have the ability to collect, analyze, and organize information from various sources using the latest information technology in chemistry journals and databases related to essential oil development, materials for energy and the environment, and natural products for food and health	PLO7	Specialist competence
8.	A	Adaptability and communication	√			√	Have capability and proficiency in the association of the chemistry global community and social awareness that supports chemistry science	PLO8	Specialist competence
9.	L	Literacy		√	√	√	Have scientific, digital, and computer proficiency, internet literacy, and mastery of international language skills to support research and development in chemistry.	PLO9	Specialist competence

The following curriculum is presented:

SEMESTER I					SEMESTER II				
No	**Code**	**Course Name**	**Credit**	**Prerequisite**	**No**	**Code**	**Course Name**	**Credit**	**Prerequisite**
1	UNI-101	English for Chemistry	2	-	1	UNI-201	Sharia Entrepreneurship	2	-
2	UNI-102	Islamic Education	2	-	2	UNI-202	Islam for Scholars	3	Islamic Education
3	UNI-103	Philosophy State	2	-	3	UNI-203	Civic Education	2	-
4	CGB-104	Biology	2	-	4	CGB-204	Capita Selecta	2	-
5	CGB-105	General Physics	2	-	5	CAB-205	Analytical Chemistry I	2	General Chemistry
6	CGB-106	General Chemistry	4	-	6	CIB-206	Inorganic Chemistry I	2	General Chemistry
7	CGB-107	Laboratory Management and Techniques	2	-	7	COB-207	Organic Chemistry I	2	General Chemistry
8	CGB-108	General Mathematics	2	-	8	CPB-208	Physical Chemistry I	2	General Chemistry
9	CGB-109	Practical Course of Physics	1	-	9	CPB-209	Mathematics for Chemistry	2	General Mathematics
10	CGB-110	Practical Course of General Chemistry	1	-	10	CAB-210	Practical Course of Analytical Chemistry I	1	Practical Course of General Chemistry
No	**Code**	**Course Name**	**Credit**	**Prerequisite**	**No**	**Code**	**Course Name**	**Credit**	**Prerequisite**
11	XXX-000	ONDI	0	-	11	XXX-000	LKID	0	-
12	XXX-000	BTAQ	0	-					
13	XXX-000	Industrial Study	0	-					
TOTAL			**20**		**TOTAL**			**20**	

SEMESTER III					SEMESTER IV				
No	**Code**	**Course Name**	**Credit**	**Prerequisite**	**No**	**Code**	**Course Name**	**Credit**	**Prerequisite**
1	CGB-301	Polymer Chemistry	2	Organic Chemistry I	1	CAB-401	Kimia Instrumental I	2	Analytical Chemistry II
2	CGB-302	Research Methodology and Bahasa	2	-	2	CAB-402	Kimia Pemisahan & Pemurnian	2	Analytical Chemistry II
3	CAB-303	Analytical Chemistry II	2	Analytical Chemistry I	3	CAB-403	Kemometri	2	General Mathematics
4	CIB-304	Inorganic Chemistry II	2	Inorganic Chemistry I	4	CIB-404	Kimia Koordinasi	2	Inorganic Chemistry II
5	COB-305	Organic Chemistry II	2	Organic Chemistry I	5	COB-405	Kimia Organik III	2	Organic Chemistry II
6	CPB-306	Physical Chemistry II	2	Physical Chemistry I	6	CPB-406	Elektrokimia	2	Physical Chemistry I
7	CPB-307	Quantum Chemistry	2	Physical Chemistry I	7	CPB-407	Komputasi kimia	2	Physical Chemistry I
8	CBB-308	Biochemistry	3	Biology	8	CPB-408	Kinetika Kimia dan Dinamika molekul	2	Physical Chemistry II
9	CAB-309	Practical Course of Analytical Chemistry II	1	Analytical Chemistry Labwork I	9	CBB-409	Mikrobiologi	2	Biology
10	COB-310	Practical Course of Organic Chemistry	1	Practical Course of General Chemistry	10	CAB-410	Prak. Kimia Instrumental I	1	Practical Course of Analytical Chemistry II
11	CPB-311	Practical Course of Physical Chemistry	1	Practical Course of General Chemistry	11	CIB-411	Prak. Kimia Anorganik	1	Practical Course of General Chemistry
					12	CBB-412	Prak. Biokimia	1	Practical Course of Organic Chemistry
TOTAL			**20**		**TOTAL**			**21**	

SEMESTER V					SEMESTER VI				
No	**Code**	**Course Name**	**Credit**	**Prerequisite**	**No**	**Code**	**Course Name**	**Credit**	**Prerequisite**
1	CGB-501	Chemical Process Industry	2	-	1	CGB-601	Environmental Chemistry	2	General Chemistry
2	CAB-502	Instrumental Chemistry II	2	Instrumental Chemistry I	2	CGB-602	Apprenticeship	2	Industrial Study
3	CAB-503	Chromatography	2	Chemical Separation and Purification	3	CAB-603	Standardization	2	Instrumental Chemistry II
4	CIB-504	Inorganic Compound Structure Elucidation	2	Inorganic Chemistry II	4	CIB-604	Organometallic and Bioinorganic	2	Coordination Chemistry
5	CIB-505	Material Chemistry	2	Inorganic Chemistry II	5	COB-605	Chemistry of Natural Products	2	Organic Chemistry III
6	CIB-506	Synthesis of Inorganic Chemistry	2	Inorganic Chemistry II	6	COB-606	Essential Oil Chemistry	2	-
7	COB-507	Organic Compound Structure Elucidation	2	Organic Chemistry III	7	CBB-607	Biotechnology	2	Biochemistry
8	COB-508	Physical Organic Chemistry	2	Organic Chemistry III	8	COB-608	Practical Course of Structure Elucidation	1	Practical Course of Organic Chemistry
9	COB-509	Organic Synthesis	2	Organic Chemistry III	9	COB-609	Practical Course of Natural Product Chemistry	1	Practical Course of Organic Chemistry
10	CAB-510	Practical Course of Instrumental Chemistry II	1	Practical Course of Instrumental Chemistry I	10	COB-610	Practical Course of Essential Oil Chemistry	1	Practical Course of Organic Chemistry
11	CAB-511	Practical Course of Chromatography	1	Practical Course of Analytical Chemistry II	11	XXX-000	Elected Courses	2	-
TOTAL			**20**		**TOTAL**			**19**	

SEMESTER VII					SEMESTER VIII				
No	**Code**	**Course Name**	**Credit**	**Prerequisite**	**No**	**Code**	**Course Name**	**Credit**	**Prerequisite**
1	UNI-701	Islam as Mercy to the World	3	-	1	CGC-801	Thesis	6	Thesis Proposal
2	UNI-702	Community Service	2	-					
3	CGB-703	Thesis Proposal	3	Research Methodology and Bahasa					
4	CAB-704	Hazardous and Toxic Substances	2	Analytical Chemistry II					
5	XXX-000	Elected course	2	-					
6	XXX-000	Elected course	2	-					
7	XXX-000	Elected course	2	-					
8	XXX-000	Elected course	2	-					
9	XXX-000	Elected course	2	-					
TOTAL			**20**		**TOTAL**			**6**	

Elected Courses in Even Semester					Elected Course in Odd Semester				
No	**Code**	**Course Name**	**Credit**	**Prerequisite**	**No**	**Code**	**Course Name**	**Credit**	**Prerequisite**
Chemical Entrepreneurship					**Chemical Entrepreneurship**				
1	CGB-901	Essential Oil Industry	2	-	1	CGB-916	Chemistry of Additives	2	Organic Chemistry II
2	CGB-902	Chemistry of Cosmetics	2	Organic Chemistry II	2	CGB-917	Food Chemistry	2	Organic Chemistry II
No	**Code**	**Course Name**	**Credit**	**Prerequisite**	**No**	**Code**	**Course Name**	**Credit**	**Prerequisite**
3	CGB-903	Chemistry of Fragrance	2	Organic Chemistry II	3	CGB-918	Chemistry of Marine Natural Products	2	Chemistry of Natural Product
4	CGB-904	Oleochemistry	2	Organic Chemistry II	4	CGB-919	Textile Chemistry	2	Organic Chemistry II
5	CGB-905	Chemical Products for Entrepreneurship		-	5	CGB-920	Chemistry of Dyes and Pigments	2	Organic Chemistry II
Chemical Industry					**Chemical Industry**				
6	CGB-906	Water, Soil, and Air Analysis	2	Analytical Chemistry II	6	CGB-921	Forensic Chemistry	2	Instrumental Chemistry II
7	CGB-907	Application of Electrochemical Technology	2	Electrochemistry	7	CGB-922	Medicinal Chemistry	2	Organic Chemistry II
8	CGB-908	Drinking Water Technology	2	Analytical Chemistry II	8	CGB-923	Petroleum Chemistry	2	-
9	CGB-909	Waste Recycling Technology	2	Analytical Chemistry II	9	CGB-924	Industrial Organic Chemistry	2	Organic Chemistry II
10	CGB-910	Remediation Technology	2	Analytical Chemistry II	10	CGB-925	Industrial Microbiology	2	-
Energy and Environment					**Energy and Environment**				
11	CGB-911	Biochemistry of Enzymes	2	Biochemistry	11	CGB-926	Geochemistry	2	Material Chemistry
12	CGB-912	Green Chemistry	2	-	12	CGB-927	Porous Materials Chemistry	2	Material Chemistry
13	CGB-913	Colloid and Surface Chemistry	2	Physical Chemistry II	13	CGB-928	Catalyst Chemistry	2	Physical Chemistry II
14	CGB-914	Nanomaterials	2	Physical Chemistry II	14	CGB-929	Pesticide Chemistry	2	Organometallics and Bioinorganics
15	CGB-915	Radiochemistry	2	Physical Chemistry II	15	CGB-930	Phytochemistry	2	Chemistry of Natural Products

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Chemistry Education:

Aspect of Competence	Code	PLO	Description of Sub PLO	Code
Attitude	PLO1	Able to express faith in God, an inclusive worldview, adaptability in global society, and an attitude of love for the country.	Able to express faith in God by applying Islamic laws and their universal values in daily life.	S-01
			Able to express an inclusive worldview, engage in global society, and maintain Islamic and national identities.	S-02
			Able to become a good citizen through the expression of pride and love for the homeland, and to maintain nationalism and a sense of responsibility to the nation and state.	S-03
	PLO2	Able to express an attitude that upholds human values, norms, and academic ethics, and capable of contributing to the improvement of the quality of social life, as well as respecting diversity, social sensitivity, and concern for the environment	Able to uphold human values based on religion, morality, and ethics.	S-04
			Able to contribute to improving the quality of social life, nation, state, and civilization based on Pancasila	S-05
			Able to appreciate the diversity of cultures, views, religions, beliefs, and opinions or original ideas of others.	S-06
			Able to collaborate and have social awareness and concern for society and the environments	S-07
			Able to become law-abiding and disciplined citizens.	S-08
			Able to internalize academic values, norms, and ethics.	S-09
	PLO3	Able to express responsibility, independence, sincerity, and commitment to developing the attitudes, values, and abilities of students.	Able to demonstrate a responsible and independent attitude toward one's expertise.	S-10
			Able to internalize independence, resilience, and entrepreneurial character.	S-11
			Able to express sincerity, commitment, and willingness to develop learners' attitudes, values, and abilities based on local wisdom and a noble attitude and the	S-12

Aspect of Competence	Code	PLO	Description of Sub PLO	Code
			motivation to provide benefits for learners and society in general.	
Knowledge	PLO4	Able to understand theoretical concepts about educational theory, learning methodology, curriculum, learning assessment, internalization of Islamic values, basic scientific methods and the use of information technology in chemistry learning.	Able to demonstrate understanding of the integrative principles of Islamic values in the area of expertise.	P-01
			Able to understand the theoretical concepts of educational theories, student development, pedagogical knowledge of chemistry, learning methodology, curriculum, and learning evaluation.	P-03
			Able to demonstrate understanding of the principles of scientific methods and the use of information and communication technology (ICT) in chemistry learning.	P-05
	PLO5	Able to understand theoretical concepts about chemistry, including structure, dynamics, energy, analysis, synthesis, characterization, separation, work safety, management and laboratory techniques.	Able to understand the theoretical concepts of chemical structure, dynamics, and energy, as well as the basic principles of division, analysis, synthesis, and characterization.	P-02
			Able to understand the principles of work safety, laboratory management, tool utilization, and chemical operational systems.	P-04
General skills	PLO6	Able to lead, be responsible, supervise, and evaluate the achievement of group work.	Able to perform contributive roles to develop society.	KU-02
			Able to make the right decisions in the context of problem solutions in one's area of expertise on the basis of information and data analysis.	KU-07
			Able to maintain and develop networking with mentors and colleagues, both inside and outside the institution.	KU-08
			Able to document, store, secure, and retrieve data to ensure validity and avoid plagiarism.	KU-11
			Able to apply logical, critical, systematic, and innovative thinking for the development and implementation of	KU-03

Aspect of Competence	Code	PLO	Description of Sub PLO	Code
			science and technology that complies with human values relevant to their area of expertise.	
			Able to demonstrate independent, qualified, and measurable performance.	KU-04
			Able to analyze the implications of science and technology development based on human values in the accounting and financial fields that refer to the norms, scientific procedures, and ethics needed to generate solutions, ideas, designs, or critiques.	KU-05
			Able to compose scientific reports in the form of final projects (thesis) and upload them on the university website.	KU-06
	PLO7		Able to apply leadership principles and become a role model in society and the workplace.	KU-01
			Able to be responsible for teamwork performance and to supervise and evaluate jobs and duties delegated to those under one's responsibility.	KU-09
			Able to conduct a self-evaluation process on teamwork under one's supervision, and able to manage independent learning.	KU-10
Specific skills	PLO8	Able to solve problems and publish ideas in one's field of work.	Able to develop and implement innovative solutions in the workplace.	KK-01
			Able to disseminate ideas and innovations in one's area of expertise in society.	KK-02
		Able to plan, implement, assess, and identify problems in chemistry learning and also apply application-based learning.	Able to plan and implement chemistry learning in a guided manner based on the characteristics of materials and learners using a scientific approach by utilizing various ICT-based learning resources and one's immediate environmental potential according to standardized content, processes, and assessments, thereby enabling learners to possess scientific skills, critical thinking, creativity, and problem solving.	KK-03
			Able to evaluate chemistry learning using standardized content, processes, and assessments.	KK-04
			Able to identify chemistry learning problems and to select alternative solutions based on existing research theories and findings as well as how to implement them in a guided study.	KK-06

Aspect of Competence	Code	PLO	Description of Sub PLO	Code
			Able to develop and apply application-based learning methods.	KK-07
	PLO9	Able to plan, implement, assess, and apply K3 principles in practicum activities in the laboratory	Able to plan, manage, and evaluate practicum activities in the implementation of a scientific approach by utilizing available potential resources while taking into account aspects of work safety.	KK-05

The following curriculum is presented:

Code	Course Name	Credits	Prerequisite
Semester 1			
UNI – 607	Indonesian for Scientific Communication	2	-
SPK – 101	Biology	2	-
SPK – 102	Physics	2	-
SPK – 103	General Chemistry	3	-
SPK – 104	Mathematics	3	-
UNI – 600	Islamic Education	2	-
UNI – 603	Philosophy State Education	2	-
SPK – 105	Physical Labwork	1	-
SPK – 106	General Chemistry Labwork	1	-
SPK – 107	Laboratory Techniques	2	-
	Total	**20**	
Semester 2			
UNI – 606	English	2	-
SPK – 208	Science Education	2	-
UNI – 601	Islam for Scholar	3	-
SPK – 209	Analytical Chemistry I	2	-
SPK – 210	Inorganic Chemistry I	2	-
SPK – 211	Physical Chemistry	3	-
SPK – 212	Organic Chemistry I	2	-
UNI-604	Civic Education	2	-
SPK – 213	Computer Applications for Chemistry Labwork	1	-
SPK – 214	Physical Chemistry Labwork	1	-
	Total	**20**	
Semester 3			
UNI – 602	Islam as Mercy to the World	3	-
SPK – 315	Chemical Bonding	2	Physical Chemistry
UNI – 605	Sharia Entrepreneurship	2	-
SPK – 316	Analytical Chemistry II	2	Analytical Chemistry I
SPK – 317	Inorganic Chemistry II	2	Inorganic Chemistry I
SPK – 318	Organic Chemistry II	2	Organic Chemistry I
SPK – 319	Management Education	2	-
SPK – 320	Student Development	2	-
SPK – 321	Analytical Chemistry Labwork	1	-
SPK – 322	Inorganic Chemistry Labwork	1	-
SPK – 323	Organic Chemistry Labwork	1	-
	Total	**20**	

Semester 4			
SPK – 424	English for Chemistry Learning	2	-

Code	Course Name	Credits	Prerequisite
SPK – 425	Biochemistry	2	-
SPK – 426	Capita Selecta	2	-
SPK – 427	Instrumental Chemistry	3	-
SPK – 428	Chemistry for Senior High School I	2	-
SPK – 429	Management and Quality Assurance Laboratory School	2	-
SPK – 430	Instructional Media in Chemistry	2	-
SPK – 431	Microteaching for Senior High School I	2	-
SPK – 432	Biochemistry Labwork	1	-
SPK – 433	Teaching and Learning Strategies	2	-
	Total	**20**	
Semester 5			
SPK – 534	Assessment for Chemistry Learning	3	-
SPK – 535	Chemistry for Senior High School II	2	-
SPK – 536	Research Methodology	2	-
SPK – 537	Chemical Research	2	-
SPK – 538	Microteaching for Senior High School II	2	-
SPK – 539	Planning and Developing of Chemistry Learning	2	-
SPK – 540	Instrumental Chemistry Labwork	1	-
SPK – 541	Education Profession	2	-
SPK – 542	Statistics for Research	2	-
SPK – 543	Review of Chemistry Curriculum for School	2	-
	Total	**20**	
Semester 6			
SPK – 644	Health and Safety at Work	2	-
SPK – 645	Chemistry of Natural Resources	2	-
SPK – 646	Green Chemistry	2	-
SPK – 647	Chemical Kinetics	2	-
SPK – 648	Environmental Chemistry	2	-
SPK – 649	Separation dan Purification Chemistry	2	-
SPK – 650	Producing Animation-based Learning Media	2	-
SPK – 651	Field Introduction of School I	2	-
SPK – 652	Chemical Process Industry	2	-
UNI – 609	Techniques of Writing Academic Paper	2	-
	Total	**20**	

Semester 7			
SPK – 753	Electrochemistry	2	-
SPK – 754	Chemistry in the Qur'an	2	-

Code	Course Name	Credits	Prerequisite
SPK – 755	Coordination Chemistry	2	-
SPK – 756	Chemistry for Vocational High School	2	-
SPK – 757	Field Introduction of School II	2	-
SPK – 758	Thesis Proposal	2	-
UNI – 608	Community Assistance Program	2	-
-	Elective 1	2	
-	Elective 2	2	
-	Elective 3	2	
	Total	**20**	
Semester 8			
SPK – 877	Thesis	4	Thesis Proposal
	Total	**4**	

Elective Course		
Code	**Course Name**	**Credits**
SPK – 759	Application and Technology of Electrochemistry	2
SPK – 760	Chemical Additives	2
SPK – 761	Food Chemistry	2
SPK – 762	Chemistry of Marine Products	2
SPK – 763	Cosmetic Chemistry	2
SPK – 764	Chemistry of Essential Oils	2
SPK – 765	Chemistry of Perfume	2
SPK – 766	Polymer Chemistry	2
SPK – 767	Management of Tutoring Agency	2
SPK – 768	Producing of Chemistry Textbook	2
SPK – 769	Producing Video-based Learning Media	2
SPK – 770	Manufacture of Essential Oils Product	2
SPK – 771	Chemical Waste Treatment	2
SPK – 772	Essential Oils Product Analysis	2
SPK – 773	Design of Essential Oils Industry	2
SPK – 774	Chemical Product for Entrepreneurship	2
SPK – 775	Drinking Water Technology	2
SPK – 776	Waste Recycling Technology	2
	Total	**36**

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree Pharmacy:

Graduates profile	Description
Prophetic spirit and characters	Graduates have a noble character according the example of the Messenger of Allah that is implemented in shape of honesty and integrity in carrying out the duty and authority as implementation of **Shiddiq;** Responsibility, dedication and discipline in carrying out the duty and authority based on sincere attitude as the implementation of the **Amanah;** conscientious and meticulous in taking conclusions and actions related to the duty and authority by prioritizing win-win solution and mutual benefit principles as an implementation of **Fathonah;** Have the courage to convey correct and accountable information and ready to provide the best service while promoting ethics of manners, as well as compassion and social sensitivity as an implementation of **Tabligh**
Researcher and Life-Long Learner	Graduates are able to apply theoretical concepts related to pharmaceutical science in conducting relevant research in the field of pharmacy and health and are able to increase the capacity of knowledge and skills on an ongoing basis to support pharmaceutical services and adapt to regulatory changes in the pharmaceuticals sector both on national and international scale
Entrepreneur	Graduates are able to apply the relevant concept of entrepreneurship in the field of pharmacy based on spirit of spreading the greatest benefit to the community
Care Giver	Graduates are able to apply pharmaceutical science and skills to prepare safe and quality pharmaceutical dosage forms, providing drug counselling to patients and solving drug-related problems according to their authority
International Orientation	Graduates are able to adopt and implement global policies in performing work and services to patients based on openness, fortitude to Islamic values, and a passion to provide the widest benefit for Indonesian people and the world
Sensible Leader and Decision Maker	Graduates are able to apply leadership principles in carrying out pharmaceutical work and decision-making based on noble character and sensitivity to surrounding circumstances and environment
Effective health communicator and Educator	Graduates are able to apply effective communication in providing services to patients and education related to medicine and health in general to the community

Learning Outcomes of Attitude

Code	Learning achievements	Description
SIF1	Islamic behavior	Graduates are able to show piety to God Almighty by carrying out His sharia in everyday of life and upholding universal Islamic ethics
SIF2	Being inclusive	Graduates are able to show inclusive view of life to get along in global society while maintaining identity of Islam and Indonesia
SIF3	Professional and ethical	Graduates are able to apply attitude of responsibility, dedication and discipline based on sincerity, honesty and integrity in carrying out their work according to their fields carefully and thoroughly and accompanied by courage to speak the truth while maintaining ethical manners and compassion while always prioritizing mutual benefit

Learning Outcomes of Knowledge

Code	Learning achievements	Description
PEF1	Basic knowledge of pharmaceutical science	Graduates master theories, methods and concepts in scope of science and technology in the fields of pharmaceutics, pharmacognosy, pharmaceutical chemistry and pharmacology and their application in pharmaceutical work
PEF2	Basic biomedical knowledge	Graduates master theories, methods, and concepts and applications of basic biomedical sciences that support the development of pharmaceutical science and practice
PEF3	Knowledge of the scope of pharmaceutical work	Graduates master the theory about the scope of pharmaceutical work in both science and technology and services
PEF4	Knowledge of legal and pharmaceutical ethics	Graduates master laws and regulations related to the pharmaceutical work
PEF5	Knowledge of drug management and consumable medical materials	Graduates master the theory and application of drug management and consumable medical materials by referring to concept of Drug Management Cycle and good pharmacy practice
PEF6	Integrative thinking	Graduates are able to integrate Islamic knowledge and values in the field of pharmacy

Learning Outcomes of General skills

Code	Learning achievements	Description
KUF1	Leadership and management	Graduates are able to manage and carry out their responsibilities and able to make decisions based on data
KUF2	Self-awareness and self-development	Graduates are able to analyze their potential and plan their development in sustainable manner
KUF3	Research and development	Graduates are able to design and carry out scientific research that supports implementation and development of pharmaceutical science
KUF4	Workplace safety	Graduates are able to apply the concept of health and safety in carrying out pharmaceutical work
KUF5	Entrepreneurial	Graduates are able to analyze entrepreneurial opportunities according to their abilities and resources by referring to sharia principles
KUF6	Cooperation	Graduates are able to analyze cooperation opportunities for self-development and employment and able to make positive contribution when being part of team-work

Learning Outcomes of Specific Skills

Code	Learning achievements	Description
KKF1	Solution-oriented skills	Able to implement spirit of innovation to solve problems in the field of pharmacy
KKF2	Diffusive skills	Able to disseminate ideas in the field of pharmaceutical science to the community
KKF3	Pharmaceutical Dosage Forms manufacturing skills	Graduates are able to make medicinal dosage forms both herbal and non-herbal properly and correctly according to principles of quality assurance and sharia (halalan thoyyiban)
KKF4	Quality assurance analysis skills and halalness of raw materials and pharmaceutical preparations	Graduates are able to apply standard analytical methods for quality assurance and halalness of raw materials, medicine and cosmetics
KKF5	Drug distribution skills	Graduates are able to apply the theory and concept of good and correct drug distribution in accordance with the principles of quality assurance

KKF6	Drug service skills	Graduates are able to apply dispensing cycle properly and correctly in drug services to patients and able to apply concept of pharmaceutical care in identifying problems related to drug use in various cases of disease along with recommendations for prevention and or treatment
KKF7	Drug information service skills	Graduates are able to apply concept of evidence-based medicine to meet requirements of drug information that supports rational drug use
KKF8	Therapeutic communication skills	Graduates are able to apply principles of effective communication with patients in providing drug services to improve effectiveness of therapy
KKF9	Health promotion skills	Graduates are able to conduct health promotion within scope of pharmacy to improve degree of public health

The following curriculum is presented:

Semester 1

No.	Course Code	Courses	CREDITS Weight	Prerequisite
1	UNI-101	PNDI	0	-
2	UNI-102	Qur'anic Self Development	0	-
3	UNI-103	Pancasila	2	-
4	UNI-104	Islamic Education	2	-
5	UNI-105	English	2	-
6	SFA-106	Organic Chemistry	3	-
7	SFA-107	Basic Pharmaceutical Chemistry	2	-
8	SFA-108	Physical Pharmacy	3	-
9	SFA-109	Cell Biology	2	-
10	SFA-110	Prescription Science	2	-
11	SFA-111	Basic Pharmaceutical Chemistry Practical	1	-
Number of Credits Semester			**19**	

Semester 2

No.	Course Code	Courses	CREDITS Weight	Prerequisite
1	UNI-212	Bahasa Indonesia for Scientific Communication	2	-
2	UNI-213	Citizenship Education	2	-
3	UNI-214	Islam Ulil Albab	3	-
4	UNI-222	Self Development Training	0	-
5	SFA-215	Biochemistry	3	Organic Chemistry

6	SFA-216	Human Anatomy and Physiology	4	Cell Biology
7	SFA-217	Pharmaceutical Analysis	2	Basic Pharmaceutical Chemistry
8	SFA-218	Medicinal Plants and Simplicia	2	-
9	SFA-219	Prescription Science Practical	1	Prescription Science
10	SFA-220	Physical Pharmacy Practical	1	Physical Pharmacy
11	SFA-221	Practical of Medicinal Plants and Simplisia	1	-
Number of Credits Semester			**21**	

Semester 3

№.	**Course Code**	**Courses**	**CREDITS Weight**	**Prerequisite**
1	UNI-322	Leadership and Da'wah Training	0	PNDI
2	SFA-323	Public Health Sciences	2	-
3	SFA-324	Design of Drug Dosage Form 1	2	Physical Pharmacy
4	SFA-325	Clinical Chemistry	2	Biochemistry
5	SFA-326	Molecular and Genetic Biology	2	Biochemistry
6	SFA-327	General Pathology	2	Human Anatomy and Physiology
7	SFA-328	Pharmacognosy and Traditional Medicine	2	Medicinal Plants and Simplicia
8	SFA-329	Immunology	2	Human Anatomy and Physiology
9	SFA-330	Pharmacology	3	Human Anatomy and Physiology
10	SFA-331	Pharmacognosy and Traditional Medicine Practical	1	Medicinal Plants and Simplicia
11	SFA-332	Pharmaceutical Analysis Practical	1	Pharmaceutical Analysis
Number of Credits Semester			**19**	

Semester 4

No.	Course Code	Courses	CRED-ITS Weight	Prerequisite
1	SFA433	Clinical Chemistry and Molecular Diagnostic Practical	1	Clinical Chemistry
2	SFA-434	Basic Pharmacokinetics	3	Pharmacology
3	SFA-435	Design of Drug Dosage Forms 2	2	Design of Drug Dosage Forms 1
4	SFA-436	Microbiology and Parasitology	3	Biochemistry
5	SFA-437	Natural Chemistry and Drug Discovery	2	Pharmacognosy and Traditional Medicine
6	SFA-438	Pharmaceutical Dosage Forms Analysis	3	Pharmaceutical Analysis
7	SFA-439	Medicinal Chemistry	2	Pharmacology
8	SFA-440	Therapeutic Concepts	3	Pharmacology
9	SFA-441	Pharmacology Practical	1	Pharmacology
10	SFA-442	Pharmaceutical Dosage Forms Analysis Practical	1	Pharmaceutical Analysis
11	SFA-443	Design of Drug Dosage Forms 1 Practical	1	Design of Drug Dosage Forms 1
Number of Credits Semester			**22**	

Semester 5

No.	Course Code	Courses	CRED-ITS Weight	Prerequisite
1	SFA-544	Islam Rahmatan Lil'alamin	3	Islam Ulil Albab
2	SFA-545	Sharia Entrepreneurship	2	Have undergone minimum 50 credits
3	SFA-546	Formulation and Technology of Sterile Dosage Forms	2	Microbiology and Parasitology

4	SFA-547	Research Methods and Biostatistics	3	Bahasa Indonesia for Scientific Communication
5	SFA-548	Pharmacotherapy 1	2	Basic Concepts of Therapy
6	SFA-549	Pharmacotherapy 2	2	Basic Concepts of Therapy
7	SFA-550	Pharmacokinetic Practical	1	Fundamental of Pharmacokinetics
8	SFA-551	Natural Chemistry and Drug Discovery Practical	1	Natural Chemistry and Drug Discovery
9	SFA-552	Design of Drug Dosage Forms 2 Practical	1	Design of Drug Dosage Forms 2
10	SFA-553	Microbiology and Parasitology Practical	1	Microbiology and Parasitology
11	SFA-9xx	Free Choice Courses	3	Adjusted
Number of Credits Semester			**21**	

Semester 6

№.	**Course Code**	**Courses**	**CREDITS Weight**	**Prerequisite**
1	SFA-653	Management of Pharmaceutical Dosage Forms and Medical Devices	3	Therapeutic Concepts
2	SFA-654	Applied Pharmacokinetics	2	Basic Pharmacokinetics
3	SFA-655	Pharmaceutical Industry	2	Design of Drug Dosage Forms 2
4	SFA-656	Pharmacotherapy 3	3	Therapeutic Concepts
5	SFA-657	Drug Information and Counseling Services	2	Therapeutic Concepts
6	SFA-658	Pharmaceutical Dispensing	2	Therapeutic Concepts
7	SFA-659	Formulation and Technology of Sterile Dosage Forms Practical	1	Formulation and Technology of Sterile Dosage Forms

8	SFA-660	Management of Pharmaceutical Dosage Forms and Medical Devices Practical	1	Therapeutic Concepts
9	SFA-662	Pharmaceutical Dispensing Practical	1	Therapeutic Concepts
10	SFA-9xx	Compulsory Elective Courses	3	Adjusted
Number of Credits Semester			**20**	

Semester 7

№.	**Course Code**	**Courses**	**CREDITS Weight**	**Prerequisite**
1	SFA-763	Pharmacotherapy 4	3	Therapeutic Concepts
2	SFA-764	Pharmacotherapy 5	4	Therapeutic Concepts
3	SFA-765	Pharmaceutical Law and Ethics	2	Dispensing Pharmacy
4	SFA-766	Pharmacoepidemiology and Pharmacoeconomics	2	Therapeutic Concepts
5	SFA-767	Support Management	2	Management of Pharmaceutical Dosage Forms and Medical Devices
6	SFA-768	Pharmacotherapy Practical	1	Pharmacotherapy 1
7	SFA-769	Drug Information and Counseling Services Practical	1	Drug Information and Counseling Services
8	SFA-770	Pharmaceutical Industry Practical	1	Pharmaceutical Industry
9	SFA-770	Thesis Proposal	1	- Research Methods and Biostatistics - Has taken ≥ 110 CREDITS - 2.50 ≥ GPA
10	SFA-9xx	Free Choice Courses	3	Adjusted
Number of Credits Semester			**20**	

Semester 8

№.	Course Code	Courses	CRED-ITS Weight	Prerequisite
1	UNI-872	Community Service Program	2	- Has taken ≥ 100 credits - 2.00 ≥ GPA
2	UNI-873	Thesis	5	Thesis Proposal with value ≥ B
Number of Credits Semester			**7**	

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor's degree programme Statistics:

ENTHUSIASTIC	Program Learning Outcomes
Ethics (E)	Obeying the law and maintaining discipline in social and state public and private life.
	Internalizing academic values, norms, and ethics.
	Showings a responsible attitude of responsibility on in working in the one's field of expertise.
Nationality (N)	Improving the quality of life in society and contributing to the state and the advancement of civilization, based on the concept of *Pancasila*.
	Taking a nationalistic pride as citizens and instilling a sense of responsibility towards nation and state
Team (T)	Working together with a social conscience and caring for the community and environment.
	Developing and maintaining networks, working with mentors, colleagues, and peers both within and outside the institution.
	Taking responsibility for achieving results as part of a group and supervising and evaluating staff so that they complete work assigned to them.
	Evaluating groups under one's responsibility.
Humanity (H)	Upholding the high value of humanity while carrying out tasks based on religion, morals, and ethics.
	Respecting the diversity of cultures, views, religions, and beliefs, as well as other people's own opinions or findings.
	Assessing the development and implementation of scientific knowledge in technologies. Applying values of humanity according to expertise, rules, procedures, and ethics to scientifically produce solutions, ideas, designs, or criticisms of art.
Ulil Albab (U)	Showing piety to Allah (The Most Glorified, The Most High) and demonstrating an attitude of religiosity.
	Internalizing the spirit of independence, struggle, and entrepreneurship.
Science (S)	Mastering a range of statistical methods and models that can be used to solve problems across a number of disciplines.
	Applying logical, critical, systematic, and innovative thinking in the context of the development or implementation of science and technology while paying attention to and applying humane values, in accordance with one's field of expertise.
Intelligence (I)	Mastering the concept of probability theory and statistics, mathematics, calculus, elementary linear algebra, statistical analysis methods, and elementary computer programming.

ENTHUSIASTIC	Program Learning Outcomes
Analysis (A)	Performing statistical analysis of a range of alternative solutions to resolve problems and presenting conclusions that enable accurate decision-making.
Software (S)	Mastering statistical software for a minimum of two devices, including opensource software.
Techniques (T)	Designing experiments and collecting data through surveys, experiments, or simulations. Organizing and analyzing these data using statistical techniques and extracting valid conclusions by utilizing at least one type of statistical software.
	Being capable of documenting, storing, securing, and determining the provenance of data to ensure authenticity and preventing plagiarism.
Insightful (I)	Demonstrating independent, top-quality, and scalable performance.
	Making the appropriate decisions in the context of solving problems in one's field of expertise, based on information and data analysis.
Communicative (C)	Resolving problems by estimating, testing hypotheses, predicting, and forecasting across a range of areas by using data and statistical methodology. Presenting results in a way that is easily understood.
	Compiling scientific results as prose in the form of a thesis or final report and uploading this to the university website

The following **curriculum** is presented:

Semester 1		Semester 2	
Courses	**Credit**	**Courses**	**Credit**
Islamic Religion Education	2		
English I	2		
Pancasila Education	2		
Calculus I	3	Exploratory Data Analysis	2
Statistical Methods I	3	Calculus II	3
Linear Algebra for Statistics	3	Statistical Method II	3
Programming Algorithm	2	Introduction to Probability	2
Business Environment	2	Database	2
		Disaster Management	3
		Official Statistics I	3
Practicum of Programming Algorithm	1	Practicum of Databse	1
		Practicum of Exploratory Data Analysis	1
Compulsory Credits	**20**		**20**
Semester 3		**Semester 4**	
Courses	**Credit**	**Courses**	**Credit**
		Islam Ulil Albab	3
		Civics Education	2
Multivariable Calculus	3	Nonparametric Statistics	3
Sampling Technique	3	Introduction to Mathematical Statistics II	3
Applied Regression Analysis	2	Geographic Information Systems	3
Introduction to Mathematical Statistics I	3	Operation Research	2
Management Information System	2	Success Skill (profession ethics)	1
Official Statistics II	3		
Practicum of Programming Algorithm	1	Practicum of Operations Research	1
Practicum of Management Information System	1		
Compulsory Credits	**18**		**18**

Semester 5		Semester 6	
Courses	**Credit**	**Courses**	**Credit**
English II	1	Islam Rahmatan Lil'alamin	3
Bahasa Indonesia	2		
Entrepreneurship	2		
Research Methodology	2	Internship	2
Categorical Data Analysis	2	Statistical Consulting	3
Time Series Analysis	2	Applied Multivariate Statistics	2
Design of Experiments	3	Introduction to Stochastics Process	3
Statistical Quality Control	3	Data Mining	3
		Statistical Computing	2
Practicum of Categorical Data Analysis	1	Practicum of Computational Statistics	1
Practicum of English II	1	Practicum of Applied Multivariate Statistics	1
Practicum of Time Series Analysis	1		
Compulsory Credits	**20**		**20**
Semester 7		**Semester 8**	
Courses	**Credit**	**Courses**	**Credit**
Community Development Participation	2		
Final Project	6	Final Project (Extension)	0
Comprehensive	1		
Data Intelligence	2		
Compulsory Credits	**11**		**0**

Elective Courses

Semester 3		Semester 4	
Courses	**Credit**	**Courses**	**Credit**
		Remote Sensing (MK)	3
		Business Decision Analysis (BS)	3
		Information Technology and Big Data (DS)	3
		Life Insurance I (AK)	3
		Work Measurement & Methods (ID)	3
Simulation Technique*	3	Introduction to Financial Statistics*	3
Financial Analysis*	3	Cost Accounting*	2
Managerial Accounting*	2	Introduction to Economics*	2
Hydrology and Climatology*	2	Introduction to Management*	2
Elective Credits (Compulsory)	**0**		**3**
Free Elective Credits	**10**		**9**
Total Credits Per Semester	10		12
Semester 5		**Semester 6**	
Courses	**Credit**	**Courses**	**Credit**
Geostatistics I (MK)	3	Geostatistics II (MK)	3
Econometrics for Business (BS)	3	Marketing Research & Strategy (BS)	3
Business Intelligence dan Machine Learning (DS)	3	Data Visualization (DS)	3
Life Insurance II (AK)	3	General Insurance (AK)	3
Production Planning and Control (ID)	3	Total Quality Management (ID)	3
Advanced Operation Research*	2	Project Management*	3
Analysis of Variance and Covariance*	2	Introduction to Survival Analysis*	3
Production Systems*	3	Engineering Economics*	3
		Facility Planning and Layout Design*	3
Elective Credits (Compulsory)	**3**		**3**
Free Elective Credits	**7**		**12**
Total Credits Per Semester	10		15
Semester 7		**Semester 8**	
Courses	**Credit**	**Courses**	**Credit**
Introduction to Reliability Model*	3		
Surface Response Techniques*	2		
Advanced Multivariate Statistics*	2		
Biostatistics*	2		
Trending Topics on Statistics*	3		
Elective Credits (Compulsory)	**0**		**0**
Free Elective Credits	**12**		**0**
Total Credits Per Semester	12		0

According to the Self-Assessment Report, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Master's degree programme Chemistry:

Aspect of competence	PLO In English	Sub-PLO	Description of Sub-PLO	Description
Social competence	Islamic Ethics (E)	PLO1	Having the ability to demonstrate a pious attitude toward God Almighty by carrying out His law in daily life and upholding Islamic morals and universal ethics.	Having the ability to demonstrate a pious attitude toward God Almighty by carrying out His law in daily life and upholding Islamic morals and universal ethics.
Social competence		PLO2	Having the ability to demonstrate an inclusive worldview and the capacity to engage cooperatively in global society while maintaining an Islamic and Indonesian identity.	
Social competence	Nationalism (N)	PLO3	Contributing to the improvement of quality of life in societies, nations, and states, as well as to the advancement of civilization based on Pancasila.	Contributing to the improvement of quality of life in societies, nations, states, as well as to the advancement of civilization based on Pancasila.
Social competence		PLO4	Assuming the role of a proud and loving citizen of the country, possessing a spirit of nationalism and a sense of responsibility to the country and nation.	
Social competence		PLO5	Respecting the diversity of cultures, views, religions, and beliefs, as well as other peoples' opinions and original research findings.	
Social competence	Ethics in Social and Professional Work (E)	PLO6	Having the ability to work in a team, as well as being socially sensitive and caring toward the community and the environment.	Having the ability to work in a team and demonstrating social sensitivity and care for the community and the environment, as well as a disciplined attitude in social and state life.
Social competence		PLO7	Obeying the law and having a disciplined attitude in social and state life.	
Social competence		PLO8	Internalizing academic values, norms, and ethics.	
Social competence	Responsibility (R)	PLO9	Demonstrating responsibility and independence toward work conducted in one's area of expertise.	Demonstrating responsibility for work conducted in one's area of expertise, as well as the capability to arrange ideas and scientific arguments, and to internalize the spirit of independence.
Social competence		PLO10	Internalizing the spirit of independence, struggle, and entrepreneurship.	
Social competence		PLO16	Having the ability to arrange ideas, theories, and scientific arguments responsibly and in consideration of academic ethics, as well as the capacity to communicate research	

Aspect of competence	PLO In English	Sub-PLO	Description of Sub-PLO	Description
			through the media to the academic community and the public at large.	
Social competence		PLO20	Having the ability to increase one's learning capacity independently.	
		PLO21	Having the ability to document, store, secure, and rediscover research data in order to ensure validity and prevent plagiarism.	
Specialist competence	Global Competence (G)	PLO14	Having the ability to develop logical, critical, systematic, and creative thinking through scientific research, theses and scientific publications, as well as the capacity to create designs in the fields of science and technology that consider and apply human values in accordance with their fields of expertise, and to compile scientific conceptions and research results based on established rules, procedures, and scientific ethics.	Having the ability to compete globally and to develop logical, critical, systematic, and creative thinking through scientific research in the fields of science and technology that considers and applies human values in accordance with one's field of expertise, and to compile scientific conceptions and research results based on established rules, procedures, and scientific ethics.
Specialist competence	Excellence in Theory (ET)	PLO11	Having the ability to master and apply concepts and theories of structure and their properties, as well as energetics, kinetics, and the analysis and synthesis of micro- and macro-molecules in the field of Indonesian natural products.	Having the ability to master and apply concepts and theories of structure and properties, as well as energetics, kinetics, analysis, instrumental analysis, and the development of procedures and syntheses concerning micro- and macro-molecules for resolving problems in the chemistry field.
Specialist competence		PLO12	Having the ability to master theoretical concepts concerning the function of the latest instruments in the field of chemistry as well as their operation, and to master the application of technologies for the management of Indonesian natural products.	
Specialist competence		PLO13	Having the ability to master and apply the latest principles, procedures, and handling techniques to the use of Indonesian natural chemicals for the benefit of people's lives, the environment, society, and the economy.	
		PLO23	Having the ability to solve science and technology problems related to structures, properties, and chemical changes at the micro- or macro-molecular level through experimental approaches, theoretical deduction, or computation/simulation and via inter- or multi-disciplinary approaches, which are characterized by the production of work that has the potential to be applied toward the resolution of problems.	
Specialist competence		PLO15	Having the ability to carry out validations and studies in accordance with one's area of expertise to solve problems in the relevant community or industry through the development of knowledge and expertise.	

Aspect of competence	PLO In English	Sub-PLO	Description of Sub-PLO	Description
Specialist competence	Innovation-Collaboration (IC)	PLO17	Having the ability to identify scientific fields as the objects of research and to assemble them into a research map through interdisciplinary or multidisciplinary approaches in the field of Indonesian natural products.	Having the ability to identify scientific fields as the objects of research and to assemble them into a research map through interdisciplinary or multidisciplinary approaches, as well as to expand the applications of these approaches based on research excellence.
Specialist competence		PLO18	Having the ability to make decisions toward the resolution of problems in the development of science and technology that consider and apply human values based on analytical or experimental studies of information and data.	
Specialist competence		PLO19	Having the ability to manage, develop, and maintain a network of colleagues, within both the institution and the wider research community.	
Specialist competence		PLO22	Having the ability to deepen or expand scientific or applied chemistry by producing accurate, tested, and innovative models/methods/theories in the field of essential oils or materials and electrochemistry for energy and the environment, as well as for the development of natural products for health and food.	

The following **curriculum** is presented:

SEMESTER 1						
	DEVELOPMENT CONCENTRATION ESSENTIAL OIL AND PRODUCT DERIVATIVES	**SKS**	**CONCENTRATION OF MATERIALS AND ELECTROCHEMISTRY FOR ENERGY AND THE ENVIRONMENT**	**SKS**	**CONCENTRATION OF NON-ESSENTIAL ISOLATION AND SYNTHESIS FOR HEALTH AND FOOD**	**SKS**
1.	Instrument Chemistry	3	Instrument Chemistry	3	Instrument Chemistry	3
2.	Separation and Purification Chemistry	3	Separation and Purification Chemistry	3	Separation and Purification Chemistry	3
3.	Synthesis of Essential Oils and Their Derivatives	3	Quantum and Computational Chemistry	3	Natural Material Synthesis	3
4.	Synthesis of Organic and Inorganic Chemistry	3	Synthesis of Organic and Inorganic Chemistry	3	Synthesis of Organic and Inorganic Chemistry	3
5.	Essential Oil Characterization	3	Electrochemical Analysis	3	Pharmacology and Toxicology	3
6.	Ecology and Environmental Chemistry	2	Ecology and Environmental Chemistry	2	Ecology and Environmental Chemistry	2
7.	Organic reaction mechanism	2	Advanced Materials	2	Organic reaction mechanism	2
TOTAL CREDITS		**19**		**19**		**19**
SEMESTER 2						
	DEVELOPMENT CONCENTRATION ESSENTIAL OIL AND PRODUCT DERIVATIVES	**SKS**	**CONCENTRATION OF MATERIALS AND ELECTROCHEMISTRY FOR ENERGY AND THE ENVIRONMENT**	**SKS**	**CONCENTRATION OF NON-ESSENTIAL ISOLATION AND SYNTHESIS FOR HEALTH AND FOOD**	**SKS**
1.	Research and publication design	2	Research and publication design	2	Research and publication design	2
2.	Proposal and Preliminary Research	2	Proposal and Preliminary Research	2	Proposal and Preliminary Research	2
3.	Elucidation of Organic and inorganic compounds	2	Elucidation of Organic and inorganic compounds	2	Elucidation of Organic and inorganic compounds	2
4.	Elective courses	2	Elective courses	2	Elective courses	2
5.	Elective courses	2	Elective courses	2	Elective courses	2
6.	Elective courses	2	Elective courses	2	Elective courses	2
TOTAL CREDITS		**12**		**12**		**12**

Elective courses						
1.	Essential Oil Industry Process	2	Catalyst Chemistry	2	Functional Food Chemis-try	2
2.	Perfume, Flavor, Aromatherapy	2	Inorganic reaction mechanism	2	Enzymology	2
3.	Oil bioactivity essential	2	Sensors and Biosensors	2	Synthesis Technique Enzymatic	2
4.	Essential oil for edible coating	2	Functional materials	2	Bioactivity of natu-ral ingredients	2
5.	Essential oil for pest control	2	Energy Conservation	2	Bioenergy	2
6.	Green and Sustainable Chemistry	2	Green and Sustainable Chemistry	2	Green and Sus-tainable Chem-istry	2
7.	Adsorption Technology	2	Adsorption Technology	2	Adsorption Technology	2
8.	Waste Treatment Technology	2	Waste Treatment Technology	2	Waste Treatment Technology	2
SEMESTER 3						
DEVELOPMENT CONCENTRATION ESSENTIAL OIL AND PRODUCT DERIVATIVES		**SKS**	**CONCENTRATION OF MATERIALS AND ELECTROCHEMIS-TRY FOR ENERGY AND THE ENVIRON-MENT**	**SKS**	**CONCENTRATION OF NON-ESSEN-TIAL ISOLATION AND SYNTHESIS FOR HEALTH AND FOOD**	**SK S**
1.	Islam Ulil Albab	2	Islam Ulil Albab	2	Islam Ulil Albab	2
2.	Thesis Research	5	Thesis Research	5	Thesis Research	5
3.	Islam Rahmatan Lil Alamin	1	Islam Rahmatan Lil Alamin	1	Islam Rahmatan Lil Alamin	1
4.	Scientific work International	1	Scientific work International	1	Scientific work International	1
TOTAL CREDITS		**9**		**9**		**9**
SEMESTER 4						
DEVELOPMENT CONCENTRATION ESSENTIAL OIL AND PRODUCT DERIVATIVES		**SKS**	**CONCENTRATION OF MATERIALS AND ELECTROCHEMIS-TRY FOR ENERGY AND THE ENVIRON-MENT**	**SKS**	**CONCENTRATION OF NON-ESSEN-TIAL ISOLATION AND SYNTHESIS FOR HEALTH AND FOOD**	**SK S**
1.	Thesis	2	Thesis	2	Thesis	2
TOTAL CREDITS		**2**		**2**		**2**

Mandatory student activity

Code	Name of learning activity	Translation in English	Shape Learning	Weight skp
S11	Intensive Study of the Quran	Intensive Study of the Quran	Workshop; Student centered-learning	5
S12	Islam in the discipline of chemistry	Islam in the discipline of chemistry	Workshop; Laboratory based learning	3
S21	Ethics in the chemist profession	Ethics in the chemist profession	Workshop; Student centered-learning	2
S22	Scientific Writing / Activity Workshop Publication	Scientific Writing / Activity Workshop Publication	Workshop; Student centered-learning	2
				12 skp