ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Biology
Chemistry

Bachelor's Degree and Professional Degree Programme
Apothecary Education

Provided by
Universitas Airlangga, Surabaya

Version: March 29th 2019

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]
S1 Biologi	Bachelor Degree in Biology	ASIIN	-	10
S1 Kimia	Bachelor Degree in Chemistry	ASIIN	-	09
Apoteker Pada Tanggai	Apothecary Education	ASIIN	-	09, 10
Date of the contract: 22.05.2017 **Submission of the final version of the self-assessment report:** 10.10.2017 **Date of the onsite visit:** 22.11. – 23.11.2017 **at:** Surabaya, Indonesia				
Peer panel: Prof. Dr. Axel Griesbeck, University of Cologne Prof. Dr. Dieter Heineke, University of Goettingen Prof. Dr. Friedhelm Meinhardt, University of Muenster Prof. Dr. Hilmar Förstel, Agroisolab GmbH Atika Rahasta, Student, Universitas Brawijaya				
Representative of the ASIIN headquarter: Rainer Arnold				
Responsible decision-making committee:				

[1] ASIIN Seal for degree programmes;
[2] TC: Technical Committee for the following subject areas: TC 09 – Chemistry; TC 10 – Life Sciences;

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 10 – Life Sciences as of 09.12.2011 Subject-Specific Criteria of Technical Committee 09 – Chemistry as of 09.12.2011	

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
Ba Biology	S.Si /B.Sc.	1. Botany 2. Zoology 3. Ecology 4. Microbiology	6	Full time	no	8 Semester	144 credits (231,8 ECTS)	September / July 1982
Ba Chemistry	S.Si /B.Sc.	1. Organic Chemistry 2. Biochemistry 3. Inorganic Chemistry 4. Analytical Chemistry 5. Physical Chemistry	6	Full time	no	8 Semester	144 credits (234 ECTS)	September / July 1982
Apothecary Education	S.Farm/Bachelor of Pharmacy Apoteker/Pharmacist	1. Community Pharmacy 2. Clinical Pharmacy 3. Industrial Pharmacy	6 7	Full time	no	8 Semester 2 Semester	156 credits (234,46 ECTS) 35 credits (85,86 ECTS)	September / August 1963 March + September/ August 1963

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

For the Bachelor's degree programme Biology Universitas Airlangga (UNAIR) has presented the following profile in the Self-Assessment Report:

„Biology Programme was established to produce graduates with moral, proficiency in biology, ability to work in the area and managerial skills as detailed below:

1. Producing a competitive and ethical graduates who are capable of developing the field of biology and its application

2. Producing innovative research that encourages the development of biology and its application

3. Providing guidance, counsels, and empowerment to the community about biology and its application in order to solve problems independently and sustainably

4. Organizing cooperation with various parties in developing science, institutions, and resources.

5. Conducting performance-based education, competence, and entrepreneurship for the academic community."

For the Bachelor's degree programme Chemistry UNAIR has presented the following profile in the Self-Assessment Report:

„The Chemistry Programme is established to generate graduates who are experts in the field of chemistry and have the following skills:

1. Applying knowledge, science, and technology in chemistry for production activities and community services;

2. Mastering the fundamental science, knowledge, and methodology; and being able to identify, understand, formulate, and implement solution for problems chemistry;

3. Thinking, behaving, and acting as a susceptive environment scientist; and

4. Following science and technology development especially in the field of chemistry"

For the Apothecary Education Programme UNAIR has presented the following profile in the Self-Assessment Report:

"The Apothecary Education Programme was established to produce highly qualified pharmacists who are able to develop or encourage the development of pharmaceutical sciences and technology to implement the concept of *Pharmaceutical care*."

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
- Webpage Ba Chemistry: http://kimia.fst.unair.ac.id/en/
- Webpage Ba Biology: http://biologi.fst.unair.ac.id/en/
- Webpage Apothecary Education: http://pspa.ff.unair.ac.id/?lang=2

Preliminary assessment and analysis of the peers:
The peers refer to the Subject-Specific Criteria (SSC) of the Technical Committee Life Sciences and the SSC of the Technical Committee Chemistry as a basis for judging whether the intended learning outcomes of the Bachelor's degree programmes Biology and Chemistry and the Apothecary Education Programme as defined by UNAIR correspond with the competences as outlined by the SSC. They come to the following conclusions:

According to the Self-Assessment Report, the graduates of the Bachelor's degree programme Biology should understand the scientific biological fundamentals from cellular to molecular level and should be able to comprehend the underlying principles of the biological sciences (botany, ecology, microbiology and zoology). The graduates should also be capable of valuing the biodiversity in Indonesia and acting as moral scientist. In addition, they acquire scientific and technological knowledge in the areas biodiversity, structure and function of living beings, natural resources management, ecological management and environmental impact and preservation, as well as knowledge and skills that enables them to contribute to scientific development. Moreover, the graduates should be capable to connect natural phenomena with the environment based on scientific principles. Finally, the graduates learn how to use laboratory equipment, to work in a team, to communicate, to present their findings, and how to conduct research activities.

Due to their broad scientific background in the different areas of the biological sciences the graduates of the Bachelor's degree programme Biology are able to work in various areas of the public and private sector, such as education, health, agriculture, food, forestry, fishery, preservation and environmental management.

The goal of the Bachelor's degree programme Chemistry is to impart essential competencies in the natural sciences and the fundamental areas 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 Bachelor's degree programme Chemistry 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 qualification objectives of the Apothecary Education Programme include the acquisition of basic chemical, biological and mathematical skills, the acquisition of in-depth knowledge of chemical core subjects, pharmaceutical chemistry, quantitative and qualitative analytics as well as knowledge of pharmacology and pharmaceutical technology. In addition, students learn practical pharmaceutical work in the lab and the apothecary and should be familiar with the safe handling of chemicals and pharmaceuticals.

In addition to the subject-related qualification objectives, the students should also be capable of working autonomously as well as in a team-oriented manner during their studies and be able to conduct research activities. Furthermore, they are able to solve subject-relevant problems, can present the 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, the students have also acquired communicative skills, can work in a team and have developed a strategy for life-long learning.

Apothecaries can work in areas such as the pharmaceutical industry, biotechnology companies, apothecaries, clinical pharmacies, and hospitals.

The auditors hold the view that the objectives and intended learning outcomes of the all degree programmes under review are reasonable and well founded.

In summary, the auditors are convinced that the intended qualification profiles of all degree programmes under review allow the students to take up an occupation, which corresponds to their qualification. The degree programmes are designed in such a way that they meet the objectives set for them and the peers judge the objectives and learning outcomes of the degree programmes suitable to reflect the intended level of academic qualification. They correspond with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 10 – Life Sciences and the SSC of the Technical Committee 09 - Chemistry. The peers appreciate that UNAIR aims for high standards as to give their students good chances in the national job market as well as a good starting point to transfer to other academic programmes, to complete a Master and eventually also a PhD-programme.

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report

Preliminary assessment and analysis of the peers:

The auditors hold the opinion that the English translation and the original Indonesian names of the Bachelor's degree programmes Biology and Chemistry and the Apothecary Education Programme correspond with the intended aims and learning outcomes as well as the main course language.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module Descriptions
- Webpage Ba Chemistry: http://kimia.fst.unair.ac.id/en/
- Webpage Ba Biology: http://biologi.fst.unair.ac.id/en/
- Webpage Apothecary Education: http://pspa.ff.unair.ac.id/?lang=2

Preliminary assessment and analysis of the peers:

The Bachelor's degree programmes Biology and Chemistry are both offered by the Faculty of Science and Technology of UNAIR.

The curriculum of Bachelor's degree programme Chemistry consists of 180 course credits, with 127 credits for compulsory courses, the rests are electives. 29 courses (53 credits) of the compulsory courses are classified as general scientific classes, while the remaining 32 courses (74 credits) are categorized as subject-specific classes. To complete the degree programme the students must take at least 144 credits, but no more than 160 credits. The credits can be completed in 8 semesters, but no longer than 14 semesters. The minimum load of 144 credits is equivalent to 231.8 ECTS credit points.

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 this phase, the students can choose between five different areas of interest:

1. Organic Chemistry
2. Biochemistry
3. Inorganic Chemistry
4. Analytical Chemistry
5. Physical Chemistry

During the seventh and eighth semester, students must complete the Community Service and the undergraduate thesis.

The Bachelor's degree programme Biology encompasses 204 course credits; 124 credits are compulsory and 80 credits are electives. To complete the degree programme, the students must take a minimum of 144 and maximum of 160 credits. The credits can be completed in 8 semesters, but no longer than 14 semesters. The minimum load of 144 credits is equivalent to 234 ECTS credit points.

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 biological sciences are offered from the third to the sixth semester. During this phase, the students can choose between three different areas of interest:

1. Botany
2. Zoology
3. Ecology

4. Microbiology

During the seventh and eighth semester, students must complete the Community Service and the undergraduate thesis.

The field study (internship) in the sixth semester of the Bachelor's degree programmes Biology and Chemistry is conducted in collaboration with external institutions such as research institutions, companies, industries, etc. The students are supervised by a university lecturer and a staff member of the partner institutions where the field study is carried out. The assessment methods include a working report and seminar.

The Apothecary Education Programme is offered by the Faculty of Pharmacy of UNAIR. The Apothecary Education Undergraduate Programme is designed for four years or eight semesters, consisting of 56 compulsory courses and 15 elective courses with a minimum of 156 credits. 23 of 56 compulsory courses are classified as general scientific classes, while the rests (33 compulsory courses) are categorized as subject-specific classes. The courses in the first two semesters convey basic knowledge of natural sciences, mathematics and languages (Indonesian and English). Courses on the different pharmaceutical sciences are offered from the third to the sixth semester. During the sixth semester, students must complete the Community Service and in the eighth semester the undergraduate thesis.

In the course of the Apothecary Education Professional Degree Programme, the students can choose between three different areas of interest:

1. Community Pharmacy
2. Clinical Pharmacy
3. Industrial Pharmacy

The Apothecary Education Professional Degree Programme is usually completed in one year or two semesters with a total of 35 credits with a special focus on clinical, community or industrial pharmacy. In addition, the students attend classes with a specific relevance towards their career as apothecaries like accounting, management of quality and production and drugs and medical devices.

The students are required to complete an internship in the ninth and tenth semester in government institutions, community pharmacies, hospitals, or pharmaceutical industries for two to three months. The Faculty of Pharmacy cooperates with companies, hospitals and apothecaries so that the students can find suitable places for their internship there. The internship must be done outside the university; the students do not get paid for it.

The professional degree is awarded after passing the nationwide state exam for apothecaries. Without completing this final exam, the students are not allowed to work as apothecaries, which is protected profession in Indonesia.

The members of the teaching staff explain on demand of the peers that they offer possible topics for the Bachelor's thesis according to their own research projects. All members of the teaching staff supervise theses. The topics are announced e.g. via internet and a board at the respective laboratory. 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.

During the sixth, seventh or eighth semester, 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 eight weeks and takes 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 own 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 the students should work for the benefit of the community and the Indonesian society during the Community Service and support this concept.

Since UNAIR has the goal to become internationally more visible and wants to further internationalise its degree programmes the peers discuss with the programme coordinators if there are any classes taught in English. The programme coordinators explain that the course descriptions and the necessary documents are all available in English, but only a few classes are taught in English. This is for example the case if there is an international student attending the class. UNAIR's partner from the industry point out that the practical English skills of the graduates could be improved. This is confirmed by the students who express their sincere wish to have more subject-specific elements taught in English. This could for example be achieved by offering a journal club, where the students read, discuss and present current international papers or seminars with discussions and student presentations in English. In addition, the peers recommend doing poster presentations and oral presentations in English, which will also improve the communication skills of the students.

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 UNAIR's partner from the industry/public sector confirm that the graduates have a broad scientific education, are very adaptable, and have manifold competences which allows them to find adequate jobs.

In summary, the auditors are convinced that the intended qualifications profiles of all degree programmes under review allow the students to take up an occupation that corresponds to their qualification profile.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Academic Study Guide
- Data on the number of applications and admitted students in Chemistry, Biology and Apothecary Education Programme
- Decree of Minister of Research, Technology and Higher Education No. 2, 2015
- UNAIR webpage: http://www.unair.ac.id/?lang=en

Preliminary assessment and analysis of the peers:
According to the Self-Assessment Report, the admission procedures and policies for new and students follow the National Regulation No.2, 2015. The requirements, schedule, registration venue, and selection test are announced on UNAIR's webpage and thus accessible for all stakeholders.

There are three different ways by which students can be admitted to UNAIR. First of all, there is the national admission system, which is based on the academic performance at the high school. 40 % of the students at UNAIR are admitted through this selection system. Secondly, a national selection test is held every year for university candidates. It is a nationwide written test and it accounts for 30 % of the admitted students at UNAIR. Finally, 30 % of the students are selected based on a written test specifically held by UNAIR. These students are selected under special consideration of their social background and financial means.

Every year, approximately 100 new students are admitted to the Departments of Chemistry and Biology, which then will be divided into two groups for each compulsory class. The

Faculty of Pharmacy admits 240 students every year, which are divided into 4 parallel classes.

In the course of the last years, the number of applicants for the degree programmes under review has remained almost constant and exceeds the number of available places. For example, in 2017, there were 1032 students applying for admission to the Bachelor's degree programme Chemistry and only 97 new students were accepted. This is equivalent to an admission rate of 9 %. The numbers in the Bachelor's degree programme Biology are similar. In 2017, 1472 students applied for admission of which 95 were admitted; this is equal to an admission rate of 6 %. In the Apothecary Education Programme new students get only admitted to the Bachelor's degree programme; an admission to the Professional degree programme for students from outside UNAIR is not possible. The number of applicants for the Apothecary Education Programme is very high. In 2017, there were 4786 applications and only 239 new students were admitted; this is equal to an admission rate of 6 %.

The details of the application process at UNAIR and further information on admissions criteria and deadlines can be found in the National Regulation No. 2, 2015 and the Academic Study Guide, which is also published on the university's webpage.

The peers inquire of the programme coordinators why there are so many students applying for studying at UNAIR, especially in the Apothecary Education Programme. They learn that Apothecary Education Programme is a very popular degree programme because the job perspectives are very good. In addition, there are a great many high school graduates in Indonesia and UNAIR is one of the most prestigious universities in the country. Consequently, UNAIR is able to only accept the very best candidates. From their discussion with the students, the peers gain the impression that the admission system is very effective and only very motivated and high-performing candidates are admitted. The peers consider the highly selected and dedicated students to be one of the strong points of the degree programmes under review.

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 understand that the students in the Biology and Chemistry programmes who have already completed their thesis work practise their communication skills by taking part at a poster presentation course. In addition, some courses of the final semester also include presentation tasks. Moreover, UNAIR regularly invites guest lectures from Indonesia and

abroad. It aims at improving students' insights about studying abroad, as well as informing about job perspectives in the industry.

UNAIR points out that only some lectures are given in English, but they are trying to improve the English proficiency of the students by increasing the number of classes with English elements and by including English theses' presentations. Furthermore, UNAIR has established a staff and student exchange programme, offers a scientific week programme with English poster presentations, and wants to increase the number of foreign visiting professors. The peers appreciate these efforts and hope this will improve the English language skills as well as promote academic mobility.

The peers consider criterion 1 to be mostly 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
- Webpage Ba Chemistry: http://kimia.fst.unair.ac.id/en/
- Webpage Ba Biology: http://biologi.fst.unair.ac.id/en/
- Webpage Apothecary Education: http://pspa.ff.unair.ac.id/?lang=2

Preliminary assessment and analysis of the peers:
The structures of the Bachelor's degree programme Biology and the Bachelor's degree programme Chemistry are very similar.

During the course of the eight semesters, long degree programmes the students must take compulsory courses and elective courses. The compulsory courses include the Community Service and the Bachelor's thesis. The choice of different electives gives the students the opportunity to set individual priorities according to their interests. In the course of the discussion with the programme coordinators, the peers learn that approximately 60% of the

graduates of the Bachelor's degree programme Chemistry continue their academic education and attend a Master's programme, whereas the rate in Bachelor's degree programme Biology is much lower, only around 10 %.

In the Apothecary Education Programme, the Bachelor's studies also encompass eight semesters with compulsory (including Community Service and undergraduate thesis) and elective courses. In contrast to the other two degree programmes under review, the students in the Apothecary Education Programme do not finish their academic education with the Bachelor's degree but continue to complete the Professional Degree. The students confirm towards the peers that no students leave after finishing the Bachelor's degree and all of them continue with the Professional Degree. As a result, the Bachelor's and the Professional Degree in the Apothecary Education Programme are "integrated and inseparable".

After analysing the module descriptions and the study plans the peers confirm that all degree programmes under review are divided into modules and that each module is a sum of coherent teaching and learning units. All working practice intervals (Community Service) and internships are well integrated into the curriculum and the supervision by the Faculty of Pharmacy and the Faculty of Science and Technology guarantees for their respective quality in terms of relevance, content, and structure.

In addition, the peers gain the impression that the choice of modules and the structure of the curriculum ensure that the intended learning outcomes of the respective degree programme can be achieved.

International Mobility

According to the opinion of the peer group, a critical aspect of the degree programmes under review is the limited academic mobility of the students.

The programme coordinators admit that the number of students who participate in international exchange programmes is still low. Prolonged study time and financial problems are two contributing factors. UNAIR tries to promote the international mobility by waiving tuition fees during the stay abroad and by providing financial assistance (scholarships). Through these efforts, an increase has been recorded in the number of involved students during 2016 and 2017. In 2016, 17 chemistry and 16 apothecary students spent one or two weeks abroad (Thailand, Malaysia, Singapore, Korea, Japan and Germany). There was a slight increase of the numbers in 2017, when 20 chemistry and 31 apothecary students went abroad. Although, the Self-Assessment Report did not include any specific numbers from the Bachelor's degree programme Biology, the programme coordinators confirm that the academic mobility of the biology students is also rather low and comparable to the Bachelor's degree programme Chemistry.

The Faculty of Sciences and Technology and the Faculty of Pharmacy have recognised that there is a serious need for increasing the academic mobility of its own students and for attracting more international students. The peers support the first steps (tuition waiver and scholarships), but are convinced that more measures need to be implemented in order to support the internationalisation of UNAIR. For example, there should be more English elements in the subject-specific classes, classes in scientific English should be offered, and the members of the teaching staff should further improve their English proficiency and spent more time abroad. Furthermore, the faculties should invite more visiting lecturers, initiate more international exchange programmes, offer more places for summer courses, and should provide more and better-endowed scholarships for the outgoing students.

The students confirm during the discussion with the peers that some opportunities for international academic mobility exist. However, they also point out that they wish for more places, more exchange programmes and more scholarships.

The peers appreciate the effort to foster international mobility and support both faculties further pursuing this path. However, the academic mobility is still low and there is a lot of room for improvement.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module Descriptions
- Data on the Length of Studies and Drop Out Rates
- Airlangga University Credit Transfer System (ACTS)

Preliminary assessment and analysis of the peers:
According to the Airlangga University Credit Transfer System (ACTS), one Indonesian credit of learning activity consists of:

1. One hour (50 minutes) of structured and scheduled meeting (teaching) per week per semester;
2. One hour (50 minutes) of structured but unscheduled activity (assignments etc.) per week per semester;
3. One hour (50 minutes) of unstructured and unscheduled activity (independent activity) per week per semester.

One Indonesian credit of laboratory work consists of:

1. Two hours (100 minutes) of structured and scheduled meeting (teaching) per week per semester;
2. Two hours (100 minutes) of structured but unscheduled activity (assignments etc.) per week per semester;
3. Two hours (100 minutes) of unstructured and unscheduled activity (independent activity).

One Indonesian credit of practical work (fieldwork, internship, research (thesis)) consists of:

1. Four hours (200 minutes) of structured and scheduled meeting (teaching) per week per semester;
2. Four hours (200 minutes) of structured but unscheduled activity (assignments etc.);
3. Four hours (200 minutes) of unstructured and unscheduled activity.

The workload describes the time needed by students to finish a learning activities (such as in class meetings, seminars, practical work, independent activity, examinations etc.). At UNAIR the workload of each student ranges from 1152 to 2304 hours for one academic year (12 to 24 ACTS per semester). The workload is usually divided into 18 credits per semester. An ECTS credit point is equal to 25-30 hours while an ACTS is equal to 48 hours. The average workload is equivalent to 60 ECTS credits per year, with assuming one ECTS credit equals 28.8 hours.

The peers confirm that the workload in hours is indicated in the module descriptions and the distinction between classroom work and self-studies is made transparent and is in line with the credits awarded.

The Bachelor's degree programmes Biology and Chemistry are designed for 8 semesters with a minimum of 144 Indonesian credits, whereas in the Apothecary Education Programme a minimum of 156 Indonesian credits is needed. The completion of the professional degree in the Apothecary Education Programme takes another two semesters and includes additional 35 Indonesian credits.

UNAIR provides statistical data about the average length of studies. According to the data, the average length of studies in the Bachelor's degree programmes Biology is 4.05 years (2013 - 2016, in the Bachelor's degree programmes Chemistry 4.08 years (2011 to 2016) and the Apothecary Education Programme 4.19 years (2013 – 2016). The professional degree in the Apothecary Education Programme has an average length of studies of 0.99 years

(2013 – 2016). This shows that all degree programmes under review can be completed in the expected period.

The peers discuss with the programme coordinators and the students about the length of the Community Service and the Bachelor's thesis, the related workload, and the awarded credit points. They gain the impression that the students regularly spent more time on the Community Service and the Bachelor's thesis that expected. 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, they suggest asking the students directly about their experiences. This could e.g. be done by including a respective question in the course evaluations. In any case, UNAIR must make sure that the actual workload of the students and the awarded credits correspond with each other.

Criterion 2.3 Teaching methodology

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module Descriptions

Preliminary assessment and analysis of the peers:
The degree programmes under review make use of several different educational methods for each module such as practical laboratory work with presentations, case studies, team projects, lectures, social service, and internship or final thesis.

The overall learning model at UNAIR is aimed at improving the students' competences through discussions, case studies, research tutorials, and lectures. Practical work is designed to impart good laboratory skills and is usually done as a group activity. Some practical works include small research projects. For example in the Chemistry Programme and Apothecary Education Programme, students perform practical works such as handling/preparing samples, and analysing components using various analytical methods.

During the classes, active and interactive teaching methods (e.g. lectures, discussions, reports, presentations, and group work) are applied. UNAIR wants to encourage the students to gain knowledge from different scientific areas and wants to introduce them to research activities. This should ultimately contribute to the transition from a teacher centered to a student centered learning approach.

To help the students to achieve the intended learning outcome and to facilitate adequate learning and teaching methods UNAIR has developed cyber campus. It is a learning management system, designed as a digital platform, where students and teachers can interact.

In summary, the peer group judges 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 Study Guide

Preliminary assessment and analysis of the peers:
UNAIR 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 a group of 10 to 30 students from his classes. He is a student's first port of call for advice or support on academic or personal matters and should meet his students at least four times per semester.

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, that they meet regularly, and that they can always contact their advisor personally and ask for help or advice.

In addition, every student who enrols for the Seminar and the thesis courses will be assigned a thesis supervisor. The role of thesis supervisor is to help students to complete their thesis research; they also monitor the progress of thesis in order to ensure the completion of the thesis in the intended amount of time. The thesis supervisors should meet their students at least six times per semester. The students are allowed independently choosing their supervisors according to their field of interest. Most of the students are involved in lecturer's research project. A lecturer can only supervise of 6-12 students at the maximum per year. This limitation is aimed at ensuring that each student receives sufficient guidance from his supervisor.

The students confirm towards the peers that they are supervised in the working/research group during their work on the Bachelor's thesis. There are regular lab meetings where the students present their results and receive feedback from the other lab members.

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

There is also medical, social, and psychological support for students at UNAIR and the Center for Career Development and Entrepreneurship (PPKK) offers a career counselling.

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 strong points of UNAIR.

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

The peers thank UNAIR for clarifying that 13.46% (not 60%) of the graduates continue their studies with a Master's Programme at UNAIR or other universities. On the other hand, 60% of the students in the Master's degree programme Chemistry at UNAIR are graduated from the Bachelor's degree programme Chemistry.

UNAIR has initiated some measures for increasing the academic mobility. For example, more financial support is invested in student exchange activities. In 2018, in Biology and Chemistry 25 students will receive financial support in each programme in comparison to 10 in 2017. In Apothecary Education Programme, financial support will increase from 20 students in 2017 to 80 students in 2018. In addition, UNAIR will provide more activities during the summer programme, e.g. internship programme in hospitals, research and community pharmacy, to attract foreign students coming to UNAIR. Finally, more financial support will be available for staff exchange activities, international conferences, and visiting professors. The peers support these efforts.

With respect to the students' workload, UNAIR points out that students' feedbacks shows that the credits awarded for Community Service and Bachelor's thesis correctly reflect the workload. The peers are still convinced that the students usually spend more time on the

Community Service and the bachelor's thesis as estimated by the programme coordinators. For this reason, they expect UNAIR to carry out a systematic analysis of the actual time the students spend on these courses. They suggest designing a questionnaire and conducting a students' survey after the students have finished the Community Service and the Bachelor's thesis.

Taking UNAIR's statement into account the peers assess criterion 2 to be mostly fulfilled.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Report
- Module Descriptions
- Academic Calendar
- Academic Study Guide
- Procedure Guidance for the Examination of Diploma and Bachelor Programmes at UNAIR, 2015
- Procedure Guidance And Regulation Of Undergraduate Thesis And Final Project, 2015

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 module descriptions that are available to the students via UNAIR's homepage and the digital platform cyber campus.

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).

Students who could not take the final exam with eligible reasons are given an opportunity to re-do it once. If a student fails, he has to repeat the entire module in the following semesters. The further details are described in the Academic Study Guide (*Buku Panduan Pendidikan*) that can be accessed online. The date and time of the exams are announced to the students on time and can be accessed online. The final marks must be uploaded to the Universitas Airlangga Cyber Campus (UACC) within two weeks after the final exam. Subsequently students can view their exam's scores online on the digital platform cyber campus.

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.

The high amount of written examinations reflects in the eyes of the peers that the students mostly learn by heart. Since there are the only a few oral assignments, the peers suggest stronger aligning the form of examination with the intended learning outcomes of the respective module and introducing more competence-oriented examination methods like oral tests or presentations.

At the end of the first two years, the students' academic achievements are evaluated to determine whether they can continue their studies or must leave the faculty. Students may continue their studies if they acquire at least half of the expected credits and have a GPA of ≥ 2.00. According to the comments of the students most drop-outs in all three Bachelor's degree-programmes are due to students failing this evaluation. Only few students leave the degree programmes for other reasons and the total dropout rate is rather low (approximately 5 %). The peers see that only a few students do not complete their degree, but they suggest registering the real dropout rate for all degree programmes and distinguishing between students failing the examination after two years and students leaving on their own decision.

The peers confirm that there is a form of assessment for each course and that all students are well informed about the form of assessment and the details of what is required to pass the module. The rules for re-sits, disability compensation, illness and other circumstances are written down in the Academic Study Guide and therefore transparent to all stakeholders.

As stipulated in the Academic Study Guide, every student is required to do a final thesis in the fourth year of studies. Prior to the actual research work, the student will need to sign up for the thesis course to prepare a research proposal, which is submitted to the Thesis

Advisory Committee. This committee will verify the students' administrative fulfilment for thesis requirements, then assign the student to appropriate thesis advisor. This committee also acts as mediator between student and the thesis advisors if there is a dispute. The thesis is usually done parallel to the Community Service in the seventh and eighth semester.

After completing the work on the Bachelor's thesis the student has to defend the thesis in front of the Thesis Defence Committee; it consists of a minimum of four lecturers and will determine whether the thesis qualifies for graduation. The assessment includes writing skills (60%) and scientific comprehensiveness (40%). For students cannot comply with the minimum standards during the defence are given one more opportunity within a month. The guideline for writing thesis can be accessed online.

In the Apothecary Education Programme, the students complete their professional degree with the National Examination (*Ujian Kompetensi Apoteker Indonesia*/UKAI).

The peers discuss with the programme coordinators, the members of the teaching staff, and the students about the process to find a suitable topic of the Bachelor's thesis. For example, at the Faculty of Pharmacy the department heads invite all interested students to a short discussion where they presents all the different areas of research and what possible topics are available to the students.

In the Chemistry and Biology Departments, the teachers inform the students by presenting posters at their laboratories lectures about their research activities and by mentioning possible topics during their lectures. The recruitment is done on an individual basis, but there are regular meeting of the different research groups in the department where they also discuss about the topics of the Bachelor's theses.

It is also possible to complete the Bachelor's thesis outside UNAIR. As the employers and the partners from the industry confirm towards the peers, they also cooperate with UNAIR with respect to offering topics for Bachelor's theses. Both side benefit from this cooperation; the students can get first-hand experience of applied research in the industry and the companies can benefit from the results and sometimes hire the students after graduation.

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

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

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

The peers welcome that UNAIR is applying changes in the academic guideline related to exam and teaching methods aiming to increase the percentage of oral exams.

UNAIR is now conducting a more comprehensive monitoring and analysis to differentiate between students failing the examination after two years and students leaving on their own decision. A corresponding table for all three degree programmes is provided.

The peers consider criterion 3 to be fulfilled.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self-Assessment Report
- Staff Handbook
- List of Publications
- List of Visiting Professors

Preliminary assessment and analysis of the peers:
At UNAIR the staff members have different academic positions. There are professor, associate professor, assistant professor and lecturers. The academic position of each staff member is based on research activities, publications, academic education, supervision of students, and other supporting activities. For example, a full professor needs to hold a PhD degree. In addition, the responsibilities and tasks of a staff member with respect to teaching, research, and supervision depend on the academic position.

According to the Self-Assessment Report, there are in total 102 academic staff members (58 hold a PhD degree, 44 a Master's degree) at the Faculty of Pharmacy involved with the Apothecary Education programme. In addition, 14 lecturers are currently completing a PhD programme.

At the Faculty of Science and Technology 32 lecturers are teaching classes in the Bachelor's degree programme Chemistry (20 hold a PhD degree, 12 a Master's degree) and 30 lecturers (24 hold a PhD degree, 6 a Master's degree) are involved with the Bachelor's degree

programme Biology. In addition, eight lecturers (four in Biology and four in Chemistry) are currently completing a PhD programme.

In order to broaden the students' horizon especially in the field of research and current developments, guest lectures from both Indonesia and overseas are regularly invited. For example in the Chemistry Department, industrial practitioners are invited to give guest lectures related to the application of chemistry in the industry and opportunities for graduates. In the Faculty of Pharmacy, practitioners from hospitals, pharmacies and the pharmaceutical industry are involved in the learning process, not only as a guest lecturer, but also as supervisors in the internship program. The guest lectures from abroad usually have research cooperations with members of the teaching staff.

During the discussion with the programme coordinators the peers learn that UNAIR has a semi-autonomous status, which allows them to recruit their own staff members. However, the Indonesian Ministry of Higher Education still decides how many new staff members can be hired every year. The staff members are in general satisfied with the existing opportunities for pursuing their research interests. International publications are the goal and the key performance indicator for evaluating the research quality of the teachers. UNAIR tries to promote this by offering financial incentives and by providing additional for upgrading the technical equipment and the facilities.

In summary, the peers confirm that the composition, scientific orientation and qualification of the teaching staff are suitable for successfully implementing and sustaining the degree programmes. The only weak point they identify with respect to the qualification of the teaching staff is the fact that most of the staff members are also graduates from UNAIR. For this reason, they recommend also hiring new staff members that graduated from other universities. At least, UNAIR should make sure that the staff members spent some time abroad or at another Indonesian university after their graduation from UNAIR before hiring them permanently (for example by sending them abroad for doing a PhD).

The auditors are impressed by the excellent and open-minded atmosphere among the students and the staff members. It is supported by an extensive advisory system, which ensures that every student has an academic advisor. This atmosphere of understanding and support is one of the strong points of the degree programmes.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Report

- Staff Handbook
- List of Lecturers Taking Advanced Studies
- List of Staff Exchange
- List of Staff Participation at International Seminars

Preliminary assessment and analysis of the peers:
UNAIR encourages the training of its academic staff so it has developed a programme for improving the didactic abilities and teaching methods. According to the Self-Assessment Report

Universitas Airlangga Center for Study and Development of Education (LP3UA) is responsible for the development of lecturers' pedagogic skills by offering courses to improve the didactic and professional skills and by assisting members of the teaching staff who are doing a PhD abroad. The departments and faculties facilitate the staff development by enabling them to participate in national and international seminars and conferences. The staff exchange program is supported by each faculty and funded by UNAIR and the Indonesian Ministry of Research, Technology and Higher Education. In addition, senior lecturers are required to mentor and train newly recruited staff members in the areas of teaching and research. A sabbatical leave is also possible, but the length of the stay may vary from one month to one year; there are funds from the Indonesian Ministry of Higher Education and UNAIR available for such stays.

UNAIR regularly invites visiting professor from abroad; they usually deliver a guest lecture and to help review research manuscripts before submitting them for publication.

The peers discuss with the members of the teaching staff about the opportunities to develop their personal skills and learn that the teachers are satisfied with the internal qualification programme at UNAIR. In addition, there is an academic incentive programme for teachers. The possible financial benefits are based on research performance, academic development, tutoring, awards and teaching evaluations. The peers confirm that several lecturers have taken part at English language, especially in preparation of the audit. Since UNAIR wants to become internationally more visible the peers recommend to further increase the efforts to improve the English proficiency of the teaching staff. This would also allow to offer more subject-specific courses in English and subsequently to foster the internationalisation of UNAIR (see Criterion 2.1)

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

Criterion 4.3 Funds and equipment

Evidence:

- Self-Assessment Report
- On-site visit of the laboratories and seminar rooms

Preliminary assessment and analysis of the peers:
During the audit, the peer group also visits the laboratories and the classrooms in order to assess the quality of infrastructure and technical equipment. They notice that there are no severe bottlenecks due to missing equipment or a lacking infrastructure.

With respect to the laboratories at the Department of Chemistry, the peers notice that there are enough workplaces for educating large groups (of 50-60 students) and the students can perform the experiments in groups of two or three, sometimes larger groups. However, the number of ventilated fume cupboards is relatively small. The labs are fulltime in operation and are used for educating Bachelor's students as well as performing research activities. The students are very motivated and skilful and appear to appreciate the opportunities for lab work and experimental exercises. The researchers are consistently enthusiastic about the students' involvement and their research activities. Overall, the labs are of fair quality and the working atmosphere is remarkably open and good.

The peers find that some laboratory instruments in the optical field, e.g. for Raman- or fluorescence spectroscopy are missing and that updated equipment in the areas of optics and electrochemistry would be needed. Most important would be to install for example more ventilated hoods so that the groups doing one experiment could be reduced (2-3 students maximum). In addition, computer labs should be better equipped with subjects-specific software so that chemistry calculations and simulations needed in theoretical chemistry and quantum chemistry can be done there. The lack in technical equipment can be sometimes be compensated by collaboration with other departments at UNAIR and by external collaborations with private companies.

While visiting the laboratories in the Department of Biology, the peers noticed a similar situation as in the Department of Chemistry. There are several large laboratories for teaching the Bachelor's students and the necessary instruments are available. However, the technical equipment, such as photometers, shakers, microscopes, incubators, centrifuges, and laminar airflow cabinets should be purchased, modernized and increased in numbers. For example, just one microscope for every five students is not acceptable. For handling microbiological samples from waste and sewage modern laminar flows and hoods would be needed. The available working space in the laboratories is in general not enough for the

number of students. In the long run, the university should provide more lab space. In addition, up-to-date computers and software for introducing a class in bioinformatics are needed.

The situation at the Faculty of Pharmacy is more positive. It is located on Campus B and separate from the Faculty of Science and Technology, but a new building is under construction and the whole Faculty of Pharmacy will move on the same campus as the Faculty of Science and Technology. Since is very useful, because currently the students have to travel from one campus to another in order to attend some basic classes in the natural sciences. The visited classrooms have enough workspace for up to 60 students. The microscopy room is equipped with 60 modern microscopes. In the other laboratories, the students have to work in small groups of three or four students. The technical equipment in the laboratories is in general sufficient for teaching and for doing some research. More sophisticated instruments (HPLC, GC) are only available in separate rooms. In the departments of the Faculty of Pharmacy, more small laboratories are available, which can be used for undergraduate students' practical work, thesis, and research. It includes an ISO 17025 testing laboratory. Additionally, the students are taught for practical purposes in the apothecary shop of the university. However, the peers notice that the equipment in the Biotechnology laboratory should be updated. The laboratories used for the Apothecary Education Programme are adequately equipped. Despite of the fact that some of the basic instruments are old and should be replaced soon there is no limitation for sufficient practical education. The only other weak point is, as in the Faculty of Science and Technology, the number of students working together in one group. Four to six students are just too many. The Faculty must make sure that enough working places and instruments are available so that not more than two students are doing the same experiments together.

The students confirm during the discussion with the peers that, in general, they are satisfied with the available equipment only some materials for the laboratory work are missing and some of the technical equipment is outdated. The peers confirm this observation but want to stress that for teaching the available instruments are sufficient but for research purposes in needs to be updated and more sophisticated equipment is needed.

Finally, the students point out that the library of the Faculty of Science and Technology is rather small and does not offer enough room for the students to learn and to read. For this reason, the peers recommend increasing the available reading and working places in the library of the Faculty of Science and Technology. In addition, more copies of up-to-date textbooks are needed in all three degree programmes under review. Otherwise, the students express their satisfaction with the library opening hours and the available literature. From their point of view, there is sufficient access to current international literature and databases and a remote access is possible.

In summary, the peers expect UNAIR to provide a concept for reducing the number of students working in one group on one experiment, for upgrading and increasing the technical equipment, for providing more laboratory space and for acquiring sufficient hard- and software for bioinformatics and theoretical/computational chemistry.

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 UNAIR expects new staff members to pursue a PhD degree at highly regarded universities outside. They are extremely encouraged and supported in terms of financial supports and other relevant requirements to obtain their higher degree abroad. A table with data about the current staff members is provided. Also, the efforts to increase staff mobility are welcomed.

In addition, UNAIR plans to allocate more financial funds to laboratory equipment and instrumentation. The peers expect that conclusive documents will be submitted in the course of the fulfilment of requirements.

Taking UNAIR's statement into account the peers assess criterion 4 to be mostly fulfilled.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Self-Assessment Report
- Module Descriptions
- Webpage Ba Chemistry: http://kimia.fst.unair.ac.id/en/
- Webpage Ba Biology: http://biologi.fst.unair.ac.id/en/
- Webpage Apothecary Education: http://pspa.ff.unair.ac.id/?lang=2

Preliminary assessment and analysis of the peers:
The students, as all other stakeholders, have access to the module descriptions via UNAIR's homepage and the digital platform cyber campus.

After studying the module descriptions the peers confirm that they include all necessary information about the persons responsible for each module, the teaching methods and work load, the awarded credit points, the intended learning outcomes, the content, the applicability, the admission and examination requirements, and the forms of assessment and details explaining how the final grade is calculated.

One aspect the peers find lacking are the outdated literature recommendations. The peers recommend updating the bibliographical references in the module descriptions, because some of the mentioned papers and textbooks are more than ten years old.

Furthermore, the module handbooks of all degree programmes do not include module descriptions for the Bachelor's thesis. Since this course is an essential part of the degree programmes the peers ask UNAIR to provide a module description for Bachelor's thesis for all three degree programmes under review.

In addition, the peers point out that it is necessary to update the wording of the learning outcomes in module descriptions of the Biology programme to make obvious what is really taught and to include ecological aspects as well as organismic and interorganismic aspects.

Finally, the peers hold the view that the intended learning objectives in the module descriptions are not always formulated in a competence-oriented manner and that no taxonomy was used to describe the learning goals. They should follow taxonomy and should make clear that the students will only understand a topic but are also able to explain the underlying principles, to apply their knowledge, and to transfer it to other areas.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Sample Transcript of Records for each degree programme
- Sample Diploma certificate for each degree programme
- Sample Diploma for each degree programme

Preliminary assessment and analysis of the peers:
The peers confirm that the students of both 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, co-curricular, and intra-curricular activities). The Transcript of Records lists all the

courses that the graduate has completed, the achieved credits, grades, cumulative GPA, and mentions the seminar and thesis title.

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 UNAIR to include this additional information in the Diploma Supplement.

Criterion 5.3 Relevant rules

Evidence:

- Self-Assessment Report
- http://www.unair.ac.id/?lang=en

Preliminary assessment and analysis of the peers:
The auditors confirm that the rights and duties of both UNAIR and the students are clearly defined and binding. All rules and regulations are published on the university's website and hence available to all relevant stakeholders.

In addition, the students receive all relevant course material in the language of the degree programme including at the beginning of each semester.

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

The peers emphasize that the bibliographical references in the module descriptions should be updated. Of course, it would be even better if more financial funds for purchasing current scientific literature were available.

Together with its statement UNAIR has submitted module descriptions for the Bachelor's thesis for all three degree programmes. The peers are satisfied with the provided documents and, therefore, abstain from issuing a requirement to this effect.

The peers are glad to hear that UNAIR will rewrite the module descriptions and will redesign the Diploma Supplement. They expect UNAIR to submit the updated documents in the course of the fulfilment of requirements.

The peers consider criterion 5 to be partly fulfilled.

6. Quality management: quality assessment and development

Evidence:

- Self-Assessment Report
- Regulation of the Republic of Indonesia No 12/2012
- Regulation of the Republic of Indonesia No 20/2003
- Internal Audit Quality Manual

Preliminary assessment and analysis of the peers:
The auditors discuss the quality management system at UNAIR with the programme coordinators. 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 is conducted at university level by the Quality Assurance Board (BPM), which is supported by the Quality Assurance Units at faculty level (SPM) and degree programme level (GPM).

Internal evaluation of the quality of the degree programmes is mainly provided through student and alumni 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 the digital platform Cyber Campus. The course evaluations are held during the final exam week. A compilation of the students' feedback is sent to the respective lecturers.

In addition to the surveys, there is an annual Internal Quality Audit in order to evaluate whether the general learning objectives have been achieved. Students, supporting staff, lecturers, alumni and employers are all taking part at the Quality Audit. The results of the internal audit in 2016 show that the Bachelor's degree programme Biology achieved 83.16% (Good Performance level), the Bachelor's degree Programme Chemistry scored 93.11% (Emerging Leader level), and the Apothecary Education Programme scored 93.6% (Emerging Leader level).

During the audit, the peers learn that the results of the surveys are accessible by the students and the members of the teaching staff. If there is negative feedback, the Dean talks to the respective teacher, analyses the problem, and offers guidance. Furthermore, there is a complain box for the students that can be used for suggestions or criticism. The auditors gain the impression that the faculties take the students' feedback seriously and changes are made if there is negative feedback.

External quality assessment of the degree programmes is provided by the National Accreditation Agency for Higher Education (BAN-PT) every five years. This national standard of higher education was designed to encourage educational institutions to improve their performance in providing quality education services. Moreover, the objective of this standard is to support transparency and accountability in the implementation of national education system. Since 2004, the Apothecary Education Programme has been accredited by BAN PT with highest level of accreditation (Level A). In 2015, the Apothecary Education Programme has been accredited by Indonesian Accreditation Agency for Higher Education in Health (IAAHEH) and achieved the highest level of accreditation (Level A).

In addition, all three degree programmes under review have been accredited by the ASEAN University Network Quality Assurance (AUN-QA).

The peers discuss with the representatives of UNAIR's partners from public institutions and private companies that there are regular workshops with the partners on faculty level, where they discuss the needs and requirements of the employers and possible changes to the degree programmes. 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 all stakeholders in the quality assurance process.

In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programmes. All stakeholders are involved in the process.

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

The peers consider criterion 6 to be 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:

- Module description Bachelor's thesis for all three degree programmes
- Date since when the degree programmes are offered

E Comment of the Higher Education Institution (09.02.2018)

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

- Module description Bachelor's thesis for all three degree programmes
- Date since when the degree programmes are offered

F Summary: Peer recommendations (27.02.2018)

Taking into account the additional information and the comments given by UNAIR, 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 Biology	With requirements for one year	-	30.09.2023
Ba Chemistry	With requirements for one year	-	30.09.2023
Apothecary Education	With requirements for one year	-	30.09.2023

Requirements

For all degree programmes

A 1. (ASIIN 5.1) Re-write the module descriptions to adequately describing the qualification objectives and content of each module.

A 2. (ASIIN 4.3) Provide a concept how the technical equipment in the teaching laboratories and the available workspace will be increased so that the students will able to do practical work in groups of two.

A 3. (ASIIN 2.2) Make sure that the actual workload of the students is consistent with the awarded credits.

A 4. (ASIIN 5.2) Include statistical data about the distribution of the final grade according to the ECTS-Users' guide in the Diploma Supplement.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended further improving the English proficiency of the students by introducing more English taught subject-specific elements into the curriculum.

E 2. (ASIIN 2.1) It is recommended to further promote the academic mobility of the students.

E 3. (ASIIN 4.1) It is recommended hiring new staff members also from other universities, not only graduates of UNAIR.

E 4. (ASIIN 5.1) It is recommended to update the bibliographical references in the module descriptions.

G Comment of the Technical Committees (16.03.2018)

Technical Committee 09 - Chemistry (07.03.2018)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee suggests to expect group sizes of two to three students, as mentioned in the report, and to change requirement 2 accordingly. In addition, the TC decides to issue a recommendation with respect to the equipment of the library with subject-specific literature. Otherwise, the TC follows the suggestions of the auditors.

The Technical Committee 09 - Chemistry recommends the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology	With requirements for one year	-	30.09.2023
Ba Chemistry	With requirements for one year	-	30.09.2023
Apothecary Education	With requirements for one year	-	30.09.2023

A 2. (ASIIN 4.3) Provide a concept how the technical equipment in the teaching laboratories and the available workspace will be increased so that the students will able to do practical work in groups of two to three.

E 5. (ASIIN 4.3) It is recommended to update and increase the available scientific textbooks in the library.

Technical Committee 10 – Life Sciences (16.03.2018)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee follows the proposed recommendations and requirements of the peers.

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

follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology	With requirements for one year	-	30.09.2023
Ba Chemistry	With requirements for one year	-	30.09.2023
Apothecary Education	With requirements for one year	-	30.09.2023

H Decision of the Accreditation Commission (23.03.2018)

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

The ASIIN Accreditation Commission for Degree Programmes follows the suggestions and decides to add recommendation E 5 with respect to the available scientific textbooks, and to expect group sizes of two to three students, as mentioned in the report, and to change requirement 2 accordingly.

The Accreditation Commission for Degree Programmes decides to award the following seals:

Degree Programme	ASIIN seal	Subject-specific labels	Maximum duration of accreditation
Ba Biology	With requirements for one year	-	30.09.2023
Ba Chemistry	With requirements for one year	-	30.09.2023
Apothecary Education	With requirements for one year	-	30.09.2023

Requirements

For all degree programmes

A 1. (ASIIN 5.1) Re-write the module descriptions to adequately describing the qualification objectives and content of each module.

A 2. (ASIIN 4.3) Provide a concept how the technical equipment in the teaching laboratories and the available workspace will be increased so that the students will able to do practical work in groups of two to three.

A 3. (ASIIN 2.2) Make sure that the actual workload of the students is consistent with the awarded credits.

A 4. (ASIIN 5.2) Include statistical data about the distribution of the final grades according to the ECTS-Users' guide in the Diploma Supplement.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended further improving the English proficiency of the students by introducing more English taught subject-specific elements into the curriculum.

E 2. (ASIIN 2.1) It is recommended to further promote the academic mobility of the students.

E 3. (ASIIN 4.1) It is recommended hiring new staff members also from other universities, not only graduates of UNAIR.

E 4. (ASIIN 5.1) It is recommended to update the bibliographical references in the module descriptions.

E 5. (ASIIN 4.3) Update and increase the available scientific textbooks in the library, more copies of up-to-date textbooks are needed.

I Fulfilment of Requirements (29.03.2019)

Analysis of the peers and the Technical Committees (08.03.2019)

Requirements

For all degree programmes

A 1. (ASIIN 5.1) Re-write the module descriptions to adequately describing the qualification objectives and content of each module.

Initial Treatment	
Peers	fulfilled Vote: unanimous Justification: The module descriptions have been updated and now include all necessary information.
TC 09	fulfilled Vote: unanimous Justification: The module descriptions have been updated and now include all necessary information.
TC 10	fulfilled Vote: unanimous Justification: The module descriptions have been updated and now include all necessary information.

A 2. (ASIIN 4.3) Provide a concept how the technical equipment in the teaching laboratories and the available workspace will be increased so that the students will able to do practical work in groups of two.

Initial Treatment	
Peers	fulfilled Vote: unanimous Justification: The university has provided a list of technical equipment that has already been purchased. In addition, two more teaching laboratories for Biochemistry and Inorganic Chemistry have been established.
TC 09	fulfilled Vote: unanimous

	Justification: The TC confirms that the technical equipment has been updated.
TC 10	fulfilled Vote: unanimous Justification: The TC confirms that the technical equipment has been updated.

A 3. (ASIIN 2.2) Make sure that the actual workload of the students is consistent with the awarded credits.

Initial Treatment	
Peers	fulfilled Vote: unanimous Justification: A review of the workload has been conducted.
TC 09	fulfilled Vote: unanimous Justification: A review of the workload has been conducted.
TC 10	fulfilled Vote: unanimous Justification: A review of the workload has been conducted.

A 4. (ASIIN 5.2) Include statistical data about the distribution of the final grades according to the ECTS-Users' guide in the Diploma Supplement.

Initial Treatment	
Peers	fulfilled Vote: unanimous Justification: Statistical data about the distribution of final grades according to ECTS-Users' guide has been added to the Diploma Supplement.
TC 09	fulfilled Vote: unanimous Justification: Statistical data about the distribution of final grades according to ECTS-Users' guide has been added to the Diploma Supplement.
TC 10	fulfilled Vote: unanimous Justification: Statistical data about the distribution of final grades according to ECTS-Users' guide has been added to the Diploma Supplement.

Decision of the Accreditation Commission (29.03.2019)

Degree programme	ASIIN-label	Subject-specific label	Accreditation until max.
Ba Chemistry	All requirements fulfilled	--	30.09.2023
Ba Biology	All requirements fulfilled	--	30.09.2023
Apothecary Education	All requirements fulfilled	--	30.09.2023

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:

Chemistry Programme

Specialist Competences:	
LO 1	Graduates are able to master the knowledge of molecular structure, properties, identification, separation, characterization, transformation, molecular synthesis and applications; mastering knowledge of the function of general instruments on chemistry, operating the instruments; and mastering software applications, basic instruments, standard method for the analysis and synthesis in the field of general or specific chemistry (organic, biochemistry, analytical, physical, or inorganic chemistry)
LO 2	Graduates are able to work as master technicians or analysts who are able to solve chemical problems in a particular field using simple procedural approach
LO 3	Graduates are able to solve problems of science and technology in the field of chemistry in general within the scope of identification, analysis, isolation, transformation, and synthesis of molecules through the application of knowledge of the structure and properties of molecules, methods of analysis and synthesis in a specific field of chemistry, and the application of relevant technology
LO 4	Graduates are able to produce appropriate conclusions based on the results of the identification, analysis, isolation, transformation, and synthesis of chemicals
LO 5	Graduates are able to present alternative solutions in the areas of identification, analysis, isolation, transformation, and synthesis of chemicals at a simple molecular level that can be used as basis for decision making
LO 6	Graduates are able to prepare, handle, and manage chemicals in environment and the manufacturing process in public and private institutions
LO 7	Graduates are able to disseminate accurate review of chemistry issues in the form of reports or working papers
LO 8	Graduates are able to take responsibility for chemistry jobs concerning safety and security in an independent and accountable manner for the institution or organization
LO 9	Graduates are able to perform self-evaluation, conduct life-long self-management, and communicate information and ideas effectively in various media to people within the field or the general public

Social Competences:	
LO 10	Graduates have good moral, ethics, character in solving and handling problems, willingness to serve as a proud citizen, love to the country, and will to support world peace
LO 11	Graduates appreciate diversity of cultures, views, beliefs, and religions, as well as opinions and authentic findings of others
LO 12	Graduates are able to work together and have social sensitivity and concern to the community and environment, whilst upholding the law and have the passion to prioritize the interests of the nation and the wider community

The following **curriculum** is presented:

1st SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	KID101	GENERAL CHEMISTRY I	2	2.6
2.	KID102	PRACTICAL WORK OF GENERAL CHEMISTRY I	1	2.6
3.	BID103	GENERAL BIOLOGY I	2	2.6
4.	BID104	PRACTICAL WORK OF GENERAL BIOLOGY I	1	2.6
5.	FID103	FUNDAMENTAL OF PHYSICS I	2	2.6
6.	FID102	PRACTICAL WORK OF FUNDAMENTAL PHYSICH I	1	2.6
7.	MAA102	CALCULUS I	3	3.9
8.	AGI101	RELIGION I	2	2.6
9.	BAI101	INDONESIAN LANGUAGE	2	2.6
10.	BAE111	ENGLISH I	2	2.6
	TOTAL		18	27.3

2nd SEMESTER

	Code	Courses	Credits (sks)	ECTS ce-eq
Compulsory Courses				
1.	KID103	GENERAL CHEMISTRY II	2	2.6
2.	KID104	PRACTICAL WORK OF GENERAL CHEMISTRY II	1	2.6
3.	BID105	GENERAL BIOLOGY II	2	2.6
4.	BID106	PRACTICAL WORK OF GENERAL BIOLOGY II	1	2.6
5.	FID104	FUNDAMENTAL OF PHYSICS II	2	2.6
6.	FID105	PRACTICAL WORK OF FUNDAMENTAL PHYSICH II	1	2.6
7.	MAA103	CALCULUS II	3	3.9
8.	MAS108	ELEMENTARY STATISTIC	2	2.6
9.	MAS117	PRACTICAL WORK OF ELEMENTARY STATISTIC	1	2.6
10.	LKD101	ENVIRONMENTAL SCIENCE	2	2.6
11.	NOP104	CIVICS	2	2.6
12.	NOP103	PANCASILA	2	2.6
	TOTAL		21	32.5

3rd SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	KIA103	ANALYTICAL CHEMISTRY I	3	3.9
2.	KIA202	PRACTICAL WORK OF ANALYTICAL CHEMISTRY I	1	2.6
3.	KII201	INORGANIC CHEMISTRY I	3	3.9
4.	KII202	PRACTICAL WORK OF INORGANIC CHEMISTRY I	1	2.6
5.	KIO201	ORGANIC CHEMISTRY I	3	3.9
6.	KIF202	PHYSICAL CHEMISTRY I	3	3.9
7.	KIF203	PRACTICAL WORK OF PHYSICAL CHEMISTRY I	1	2.6
8.	MAA205	DIFFERENTIAL EQUATION	2	2.6
9.	MAA206	PRACTICAL WORK OF DIFFERENTIAL EQUATION	1	2.6
10.	PHT102	PHILOSOPHY OF SCIENCE	2	2.6
Elective Courses (0-7 Credits)				
11.	KII205	MINERALOGY	2	2.6
12.	BIP200	GENERAL OF TOXICOLOGY	2	2.6
13.	BIM201	GENERAL MICROBIOLOGY	2	2.6
14.	BIM203	PRACTICAL WORK OF GENERAL MICROBIOLOGY	1	2.6
	TOTAL		26	41.6

4th SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	KIA202	ANALYTICAL CHEMISRTY II	3	3.9
2.	KIA203	PRACTICAL WORK OF ANALYTICAL CHEMISTRY II	2	5.2
3.	KIA204	SEPARATION TECHNIQUES	2	2.6
4.	KII203	INORGANIC CHEMISTRY II	3	3.9
5.	KII204	PRACTICAL WORK OF INORGANIC CHEMISTRY II	1	2.6
6.	KIO202	PRACTICAL WORK OF ORGANIC CHEMISTRY I	1	2.6
7.	KIO203	ORGANIC CHEMISTRY II	3	3.9
8.	KIF204	PHYSICAL CHEMISTRY II	3	3.9
9.	KIF205	PRACTICAL WORK OF PHYSICAL CHEMISTRY II	1	2.6
Elective Courses (0-4 Credits)				
10.	KII206	COORDINATION COMPOUNDS	2	2.6
11.	MNO301	MANAGEMENT ORGANIZATION	2	2.6
	TOTAL		23	36.4

5th SEMESTER

	Code	Courses	Credits (sks)	ECTS ce-eq
Compulsory Courses				
1.	KIA205	SPECTROMETRY AND ELECTROMETRY	3	3.9
2.	KIO204	PRACTICAL WORK OF ORGANIC CHEMISTRY II	2	5.2
3.	KIO301	PHYSICAL ORGANIC CHEMISTRY	3	3.9
4.	BIK302	BIOCHEMISTRY I	3	3.9
5.	BIK203	PRACTICAL WORK OF BIOCHEMISTRY I	1	2.6
6.	KIF301	PHYSICH CHEMISTRY III	3	3.9
7.	PNT497	RESEARCH METHODOLOGY	2	2.6
Elective Courses (0-11 Credits)				
8.	KII302	ORGANOMETALIC COMPOUNDS	2	2.6
9.	KIF303	POLYMERS CHEMISTRY	2	2.6
10.	LKK301	ENVIRONMENT CHEMISTRY	2	2.6
11.	LKK302	PRACTICAL WORK OF ENVIRONMENT CHEMISTRY	1	2.6
12.	KIT301	CHEMICAL INDUSTRIAL PROCESS	2	2.6
13.	MNS304	LABORATORY MANAGEMENT	2	2.6
	TOTAL		28	41.6

6th SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	KIA302	PRACTICAL WORK OF SPECTROMETRY AND ELECTROMETRY	1	2.6
2.	KII301	PHYSICAL INORGANIC CHEMISTRY	3	3.9
3.	KIO302	ELUCIDATION OF ORGANIC STRUCTURE	3	3.9
4.	KIO303	PRACTICAL WORK OF ELUCIDATION OF ORGANIC STRUCTURE	1	2.6
5.	KIO304	SYNTHESIS ORGANIC COMPOUNDS	2	2.6
6.	BIK304	BIOCHEMISTRY II	2	2.6
7.	KIF302	PHYSICAL CHEMISTRY IV	3	3.9
8.	KLT301	FIELD STUDY	2	6.4
9.	AGI401	RELIGION II	2	2.6
Elective Courses (0-14 Credits)				
10.	KIA312	FORENSIC CHEMISTRY	2	2.6
11.	KIO305	NATURAL PRODUCT CHEMISTRY	2	2.6
12.	KIM102	MEDICINAL CHEMISTRY	2	2.6
13.	BIK204	ENZYMOLOGY	2	2.6
14.	BIT301	BIOTECNOLOGY	2	2.6
15.	KIA407	ADVANCED TOPICS IN ANALYTICAL CHEMISTRY	2	2.6
16.	KIT302	COMPUTATIONAL CHEMISTRY	2	2.6
	TOTAL		33	49.3

7th SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	PNT491	SEMINAR	2	2.6
2.	KNT401	COMMUNITY DEVELOPMENT PARTICIPATION	3	9.6
3.	BAE112	ENGLISH II	2	2.6
Elective Courses (0-17 Credits)				
4.	KIA302	APPLIED ANALYTICAL CHEMISTRY	3	3.9
5.	KST408	ADVANCED TOPICS IN INORGANIC CHEMISTRY	2	2.6
6.	KIO404	PHYTOCHEMISTRY METHOD	2	3.9
7.	KIO401	PETROLEUM CHEMISTRY	2	2.6
8.	KST409	ADVANCED TOPICS IN ORGANIC CHEMISTRY	2	2.6
9.	BIK306	ADVANCED BIOCHEMISTRY	2	3.9
10.	BIK402	ADVANCED TOPICS IN BIOCHEMISTRY	2	2.6
11.	KST413	ADVANCED TOPICS IN PHYSICH CHEMISRY	2	2.6
	TOTAL		24	38.2

8th SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	PNT499	THESIS	6	15.6
	TOTAL		6	15.6

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

Biology Programme

Specialist Competences:	
LO 1	Graduates are able to argue biology and related technologies from cellular to molecular level
LO 2	Graduates are able to integrate the principles of biology (botany, ecology, microbiology and zoology) in accordance with scientific principles
LO 3	Graduates are able to evaluate biodiversity in Indonesia according to the key of determination
LO 4	Graduates are able to activity as a moral scientist, political, nationalist spirit, and communicate (Indonesian and foreign language)
LO 5	Graduates are able to describe natural phenomena based on biological principles (universality, evolution, diversity, continuity, homeostatic, interactions)
LO 6	Graduates are able to connect natural phenomena and its interaction with the environment based on the principles and Mathematics and Science
LO 7	Graduates are able to use laboratory equipment in accordance with Standard Operating Procedure

Social Competences:	
LO 8	Graduates are able to prove the principles of biology to life in accordance with the social life
LO 9	Graduates are able to design research in biology appropriate scientific method and be able to prove the benefits for the life
LO 10	Graduates are able to working and given the responsibility to work in biology individual or groups and mastery the technique and entrepreneurial characterized

The following **curriculum** is presented:

1st SEMESTER

No.	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	AG101	RELIGION I	2	2.6
2.	BAE111	ENGLISH I	2	2.6
3.	MAA102	CALCULUS I	3	3.9
4.	FID103	BASIC PHYSICS I	2	2.6
5.	FID106	PRACTICAL WORK OF BASIC PHYSICS I	1	2.6
6.	KID101	GENERAL CHEMISTRY I	2	2.6
7.	KID102	PRACTICAL WORK OF GENERAL CHEMISTRY I	1	2.6
8.	BID103	GENERAL BIOLOGY I	2	2.6
9.	BID104	PRACTICAL WORK OF GENERAL BIOLOGY I	1	2.6
10.	BAI101	BAHASA INDONESIA	2	2.6
TOTAL			18	27.3

2nd SEMESTER

No.	Code	Courses	Credits (sks)	ECTS ce-eq
Compulsory Courses				
1.	NOP103	PANCASILA	2	2.6
2.	LKD101	ENVIRONMENTAL SCIENCE	2	2.6
3.	MAA103	CALCULUS II	3	3.9
4.	FID104	BASIC PHYSICS II	2	2.6
5.	FID105	PRACTICAL WORK OF FUNDAMENTAL PHYSICS II	1	2.6
6.	KID103	GENERAL CHEMISTRY II	2	2.6
7.	KID104	PRACTICAL WORK OF GENERAL CHEMISTRY II	1	3.9
8.	BIB101	PLANT MORPHOLOGY	2	2.6
9.	BIB102	PRACTICAL WORK OF PLANT MORPHOLOGY	1	2.6
10.	BID105	GENERAL BIOLOGY II	2	2.6
11.	BID106	PRACTICAL WORK OF GENERAL BIOLOGY II	1	2.6
12.	BIS101	CELL BIOLOGY	2	2.6
13.	NOP104	CIVICS	2	2.6
TOTAL			23	36.4
Elective Courses (0-7 Credits)				
14.	LKB102	ENVIRONMENTAL MANAGEMENT	2	2.6
15.	BIB104	ECONOMY BOTANY	2	2.6
16.	BIL132	ABIOTIC ENVIRONMENT	2	2.6
TOTAL			6	7.8

3rd SEMESTER

No.	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	PHT101	SCIENCE PHILOSOPHY	2	2.6
2.	KIO103	GENERAL ORGANIC CHEMISTRY	3	3.9
3.	BIZ204	VERTEBRATES COMPARATIVE ANATOMY	3	3.9
4.	BIZ205	PRACTICAL WORK OF VERTEBRATES COMPARATIVE ANATOMY	1	2.6
5.	BIM201	GENERAL MICROBIOLOGY	2	2.6
6.	BIM203	PRACTICAL WORK OF GENERAL MICROBIOLOGY	1	2.6
7.	BIB201	PLANT ANATOMY	2	2.6
8.	BIB204	PRACTICAL WORK OF PLANT ANATOMY	1	2.6
9.	LKB201	GENERAL ECOLOGY	2	2.6
10.	LKB203	PRACTICAL WORK OF GENERAL ECOLOGY	1	2.6
11.	BIG302	GENETICS	2	2.6
TOTAL			19	31.2
Elective Courses				
12	LKB204	NATURAL RESOURCE MANAGEMENT	2	2.6
13	BIB103	ORCHIDOLOGY	2	2.6
14	BIB105	PRACTICAL WORK OF ORCHIDOLOGY	1	2.6
15.	BIB207	SPERMATOPHYTAE REPRODUCTION	2	2.6
16.	BIB208	PRACTICAL WORK OF SPERMATOPHYTAE REPRODUCTION	1	2.6
17.	BIZ203	CARCINOLOGY	2	2.6
TOTAL			10	15.6

4th SEMESTER

No.	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	BIK201	BIOCHEMISTRY	2	2.6
2.	BIK203	PRACTICAL WORK OF BIOCHEMISTRY	1	2.6
3.	BIG201	MOLECULAR GENETICS	2	2.6
4.	BIG202	PRACTICAL WORK OF MOLECULAR GENETICS	1	2.6
5.	MAS104	STATISTIC METHODS	3	3.9
6.	BIZ206	ANIMAL HISTOLOGY	2	2.6
7.	BIZ207	PRACTICAL WORK OF ANIMAL HISTOLOGY	1	2.6
8.	BIB211	PLANT PHYSIOLOGY	2	2.6
9.	BIB212	PRACTICAL WORK OF PLANT PHYSIOLOGY	1	2.6
10.	BIU101	BIOSYSTEMATICS	2	2.6
11.	BIU102	PRACTICAL WORK OF BIOSYSTEMATICS	1	2.6
TOTAL			19	29.9
Elective Courses				
12.	LKB310	PLANT ECOLOGY	2	2.6
13.	LKB312	PRACTICAL WORK OF PLANT ECOLOGY	1	2.6
14.	LKT308	REMOTE SENSING IN ENVIRONMENT	2	2.6
15.	LKB205	ECOTOXICOLOGY	2	2.6
16.	BIU301	MARINE BIOLOGY	2	2.6
17.	BIU310	SOIL BIOLOGY	2	2.6
18.	KIO402	PHYTOCHEMISTRY METHODS	2	2.6
19.	MNO301	ORGANIZATION MANAGEMENT	2	2.6
20.	BIM103	BACTERIOLOGY	2	2.6
21.	BIM104	PRACTICAL WORK OF BACTERIOLOGY	1	2.6
22.	BIR303	SPERMATOLOGY	1	1.3
23.	BIR308	PRACTICAL WORK OF SPERMATOLOGY	1	2.6
TOTAL			20	29.9

5th SEMESTER

No.	Code	Courses	Credits (sks)	ECTS ce-eq
Compulsory Courses				
1.	KHU201	ANIMAL PHYSIOLOGY	3	3.9
2.	KHU202	PRACTICAL WORK OF ANIMAL PHYSIOLOGY	1	2.6
3.	BIR306	VERTEBRATES EMBRYOLOGY	2	2.6
4.	BIR307	PRACTICAL WORK OF VERTEBRATES EMBRYOLOGY	1	2.6
5.	BIB205	PLANT TAXONOMY	2	2.6
6.	BIB206	PRACTICAL WORK OF PLANT TAXONOMY	1	2.6
7.	BIZ208	ANIMAL TAXONOMY	2	2.6
8.	BIZ209	PRACTICAL WORK OF ANIMAL TAXONOMY	1	2.6
9.	PNT497	RESEARCH METHODOLOGY	2	2.6
10.	BIB301	PLANT EMBRYOLOGY	2	2.6
11.	BIB302	PRACTICAL WORK OF PLANT EMBRYOLOGY	1	2.6
TOTAL			18	29.9
Elective Courses (0-11 Credits)				
12.	LKB306	ANIMAL ECOLOGY	2	2.6
13.	LKB103	AQUATIC ECOLOGY	2	2.6
14.	LKB303	PRACTICAL WORK OF AQUATIC ECOLOGY	1	2.6
15.	BIB202	MYCOLOGY	2	2.6
16.	BIB203	PRACTICAL WORK OF MYCOLOGY	1	2.6
17.	BIM303	ENVIRONMENT MICROBIOLOGY	2	2.6
18.	BIT304	PLANT TISSUE CULTURE	2	2.6
19.	BIT305	PRACTICAL WORK OF PLANT TISSUE CULTURE	1	2.6
20.	BIR302	ANIMAL REPRODUCTION	2	2.6
21.	BIR305	PRACTICAL WORK OF ANIMAL REPRODUCTION	1	2.6
22.	BIZ210	ANIMAL TISSUE ADAPTATION	2	2.6
23.	BIU305	MICROTECHNIQUE	1	1.3
24.	BIU306	PRACTICAL WORK OF MICROTECHNIQUE	2	5.2
25.	MNW201	ENTREPRENEURSHIP	2	2.6
26.	BIT307	GENETIC ENGINEERING	2	2.6
TOTAL			25	40.3

6th SEMESTER

No.	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	BIT306	FUNDAMENTAL OF BIOTECHNOLOGY	2	2.6
2.	BIU300	CAPITA SELECTA	2	2.6
3.	BIU309	EVOLUTION	2	2.6
4.	BIU308	BIODIVERSITY	2	2.6
5.	BAE112	ENGLISH II	2	2.6
6.	KLT301	FIELD STUDY	2	10.4
TOTAL			12	23.4
Elective Courses (0-14 Credits)				
7	LKB305	ENVIRONMENTAL POLLUTION	2	2.6
8	BIZ202	ENTOMOLOGY	2	2.6
9	BIM301	APPLIED MICROBIOLOGY	2	2.6
10	BIM302	PRACTICAL WORK OF APPLIED MICROBIOLOGY	1	2.6
11	BIB303	PLANT MORPHOGENESIS	2	2.6
12	BIB304	MAGNOLIOPHYTA TAXONOMY	2	2.6
13	BIE301	ENDOCRINOLOGY	2	2.6
14	BIU302	TERATOLOGY	2	2.6
15	BIU304	DEVELOPMENT BIOLOGY	2	2.6
16	BIT308	INTRODUCTION TO ANIMAL CELL CULTURE	2	2.6
TOTAL			19	26

7th SEMESTER

No.	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	KNT401	COMMUNITY SERVICE	3	15.6
2.	PNT491	SEMINAR	2	2.6
TOTAL			5	18,2

8th SEMESTER

No.	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	PNT499	THESIS	6	15.6
TOTAL			6	15.6

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

Apothecary Education Programme:
A. BACHELOR DEGREE OF PHARMACY

Specialist Competences: Graduates are able to :	
LO1	Explain fundamental and applied basic sciences, basic medical sciences and basic social sciences to support the pharmaceutical sciences.
LO2	Explain basic principles of pharmaceutical science and technology relevant to the development (invention,design, and marketing)of new pharmaceutical products.
LO3	Explain the concept of quality control for drug raw material and pharmaceutical preparations (drugs, traditional medicines, and cosmetics), food and beverages in accordance with scientific principles and standards
LO.4	Explain basic principles and techniques of preparations and explain the use and service of special drug groups
LO.5	Explain basic principles and techniques of drug design in relation to the structures and biological activities
LO.6	Apply science and/or technology in the field of pharmacy through scientific reasoning based on logical, critical, systematic, and innovative thinking
LO.7	Prepare pharmaceutical products (drugs, traditional medicines and cosmetics) covering aspects of the formulation, manufacture and quality assurance of pharmaceutical preparations, on the basis of pharmaceutical science and technology
LO.8	Examine and assess the scientific validity of drug-related information by considering legal, ethical, professional, sociocultural, and economicaspects for the benefits of patients
LO.9	Review scientific publications related to the field of pharmacy
LO.10	Conduct research as the application of scientific methods and attitudes of scientists, be able to communicate and account for the results on the basis of scientific rules and principles.
LO.11	Publish results of their final project or the work of the design / formula, qualified by scientific procedures, and could be accessed by the academic community
LO.12	Participate in preventive and promotive efforts to improve the quality of public health
LO.13	Provide information and communication about pharmaceutical preparations and other pharmaceutical supplies to patients, colleagues, communities and fellow health professionals in an objective, scientific and relevant responsible rational drug therapy.

Social Competences: Graduates are able to :	
LO.14	Communicate ideas and information in pharmaceutical field effectively, through various forms of media to the academic community
LO.15	Explain correct and consistent government laws and regulations concerning pharmacy and pharmacy professional code of ethics.
LO.16	Take the right decisions based on the analysis of the supervision and evaluation of the work of pharmacy
LO.17	Manage independent learning to catch up with science and technology development in the field of pharmacy

The following **curriculum** is presented:

1st SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	BID101	BASIC BIOLOGY	2	2.24
2.	PHF101	PHYLOSOPHY OF PHARMACY	2	2.24
3.	KID105	GENERAL CHEMISTRY	2	2.24
4.	KID106	GENERAL CHEMISTRY (PRACTICAL WORK)	1	2.24
5.	AG..101	RELIGION	2	2.24
6.	NOP101	PANCASILA (STATE IDEOLOGY)	2	2.24
7.	FID101	BASIC PHYSICS	2	2.24
8.	FID102	BASIC PHYSICS (PRACTICAL WORK)	1	2.24
9.	BAI101	INDONESIAN (LANGUAGE STUDY)	2	2.24
10.	MAS105	MATHEMATICS/STATISTICS	3	3.36
	TOTAL		19	23.53

2nd SEMESTER

	Code	Courses	Credits (sks)	ECTS ce-eq
Compulsory Courses				
1.	BIA206	ANATOMY HISTOLOGY	1	1.12
2.	BIA207	ANATOMY HISTOLOGY (PRACTICAL WORK)	1	2.24
3.	FAB201	PHARMACEUTICAL BOTANY I	1	1.12
4.	FAB203	PHARMACEUTICAL BOTANY I (PRACTICAL WORK)	1	2.24
5.	FAM201	PRESCRIPTION I	3	3.36
6.	PSG101	HUMAN BEHAVIOR	2	2.24
7.	KIF201	PHYSICAL CHEMISTRY	2	2.24
8.	KIF206	PHYSICAL CHEMISTRY (PRACTICAL WORK)	1	2.24
9.	KIO201	ORGANIC CHEMISTRY I	2	2.24
10.	KIA101	ANALYTICAL CHEMISTRY	3	3.36
11.	KIA102	ANALYTICAL CHEMISTRY (PRACTICAL WORK)	2	4.48
12.	NOP104	CIVICS EDUCATION	2	2.24
	TOTAL		21	29.14

3rd SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	BIK201	BIOCHEMISTRY	2	2.24
2.	BIK203	BIOCHEMISTRY (PRACTICAL WORK)	1	2.24
3.	KDK210	PHYSIOLOGY PATHOPHYSIOLOGY	4	4.48
4.	KDK212	PHYSIOLOGY PATHOPHYSIOLOGY (PRACTICAL WORK)	1	2.24
5.	FAB301	PHARMACEUTICAL BOTANY II	1	1.12
6.	FAB308	PHARMACEUTICAL BOTANY II (PRACTICAL WORK)	1	2.24
7.	FAM202	PRESCRIPTION II	1	1.12
8.	FAM203	PRESCRIPTION II (PRACTICAL WORK)	2	4.48
9.	KIO203	ORGANICS CHEMISTRY II	3	3.36
	TOTAL		16	23.53

4th SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	BIM204	MICROBIOLOGY IMMUNOLOGY PARASITOLOGY	4	4.48
2.	BIM211	MICROBIOLOGY IMMUNOLOGY PARASITOLOGY (PRACTICAL WORK)	3	2.24
3.	FAB302	PHARMACOGNOSY	1	1.12
4.	FAB305	PHARMACOGNOSY (PRACTICAL WORK)	1	2.24
5.	FAF206	PHYSICAL PHARMACY	2	4.48
6.	FAM301	PRESCRIPTION III	2	2.24
7.	KIO205	SYNTHESIS CHEMISTRY (PRACTICAL WORK)	4	8.97
8.	KIA206	PHARMACEUTICAL ANALYSIS I	2	2.24
9.	KIA207	PHARMACEUTICAL ANALYSIS I (PRACTICAL WORK)	2	4.48
	TOTAL		21	32.50

5th SEMESTER

	Code	Courses	Credits (sks)	ECTS ce-eq
Compulsory Courses				
1.	FAT301	PHARMACOLOGY I – TOXICOLOGY I	3	3.36
2.	FAF301	BIOPHARMACEUTICS	2	2.24
3.	FAF203	LIQUID PREPARATION PHARMACEUTICS	2	2.24
4.	FAF208	LIQUID PREPARATION PHARMACEUTICS (PRACTICAL WORK)	2	4.48
5.	FAF202	SOLID PREPARATION PHARMACEUTICS	2	2.24
6.	FAF207	SOLID PREPARATION PHARMACEUTICS (PRACTICAL WORK)	2	4.48
7.	MNS303	PHARMACEUTICAL MANAGEMENT	2	2.24
8.	KIA307	PHARMACEUTICAL ANALYSIS II	3	3.36
9.	KIA308	PHARMACEUTICAL ANALYSIS II (PRACTICAL WORK)	2	4.48
10.	FAB303	PHYTOCHEMISTRY	2	2.24
11.	FAB306	PHYTOCHEMISTRY (PRACTICAL WORK)	1	2.24
	TOTAL		23	33.85

6th SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	FAT302	PHARMACOLOGY II – TOXICOLOGY II	2	2.24
2.	FAT309	PHARMACOLOGY II – TOXICOLOGY II (PRACTICAL WORK)	1	2.24
3.	KDK203	CLINICAL PATHOLOGY	2	2.24
4.	BIT302	PHARMACEUTICAL BIOTECHNOLOGY	2	2.24
5.	FAK401	PHARMACOKINETICS	2	2.24
6.	FAK402	PHARMACOKINETICS (PRACTICAL WORK)	2	4.48
7.	FAF211	SEMISOLID PREPARATION PHARMACEUTICS	2	2.24
8.	FAF209	SEMISOLID PREPARATION PHARMACEUTICS (PRACTICAL WORK)	1	2.24
9.	KNF401	KKN-BBM	3	13.45
	TOTAL		17	33.62

7th SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	FAF212	STERILE PREPARATION PHARMACEUTICS	2	2.24
2.	FAF206	STERILE PREPARATION PHARMACEUTICS (PRACTICAL WORK)	2	4.48
3.	FAM403	COMMUNITY PHARMACY	2	2.24
4.	FAM406	COMMUNITY PHARMACY (PRACTICAL WORK)	2	4.48
5.	KIM401	MEDICINAL CHEMISTRY	3	3.36
6.	KIM403	MEDICINAL CHEMISTRY (PRACTICAL WORK)	1	2.24
7.	PNF497	RESEARCH METHODOLOGY	1	1.12
8.	PNF498	UNDERGRADUATE THESIS PROPOSAL	1	1.12
9.	FAI301	PHARMACY SERVICE I	1	1.12
10.	FAI305	PHARMACEUTICAL PREPARATION MANUFACTURER I	1	1.12
11.	FAT401	PHARMACOTHERAPY	3	3.36
12.	FAB304	PHYTOPHARMACY	2	2.24
13.	FAB307	PHYTOPHARMACY (PRACTICAL WORK)	1	2.24
	TOTAL		22	31.38

8th SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
Compulsory Courses				
1.	SOK401	COMMUNICATION INFORMATION EDUCATION	2	2.24
2.	FAM401	CLINICAL PHARMACY	2	2.24

3.	AG...401	RELIGION	2	2.24
4.	FAM402	PRESCRIPTION IV	2	4.48
5.	FAI306	PHARMACEUTICAL PREPARATION MANUFACTURE II	1	1.21
6.	FAI302	PHARMACY SERVICE II	1	1.21
7.	PNF499	UNDERGRADUATE THESIS	5	1.21
8.		ELECTIVE COURSE	2	2.24
	TOTAL		17	26.90

Code		Courses	Credits (sks)	ECTS cr-eq
Elective Courses				
1.	NUF401	NUTRITION	2	2.24
2.	BIT402	GENETIC ENGINEERING PRODUCT	2	2.24
3.	KIA402	CLINICAL CHEMISTRY	2	2.24
4.	KIA305	FORENSIC CHEMISTRY	2	2.24
5.	KIA401	FOOD CHEMISTRY	2	2.24
6.	LKK301	ENVIRONMENTAL CHEMISTRY	2	2.24
7.	KII401	CHEMISTRY FOR ANORGANIC DRUGS	2	2.24
8.	KIM402	DRUG DESIGN	2	2.24
9.	FAF401	RADIO PHARMACEUTICS PREPARATION	2	2.24
10.	FAB401	TRADITIONAL MEDICINE	2	2.24
11.	PNF301	RESEARCH METHODOLOGY ON PHARMACY PRACTICE	2	2.24
12.	MNP202	MARKETING	2	2.24
13.	KIO403	INTRODUCTION TO DRUG SYNTHESIS	2	2.24
14.	FAF302	COSMETICS	2	2.24
15.	FAT418	DRUG DELIVERY SYSTEM	2	2.24

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

B. PROFESSIONAL DEGREE
Graduates are able to :

LO.18	**Uphold professionalism, moral, ethical, and legal aspects, in the practice of pharmacy**
LO.19	Perform pharmaceutical care to patients by considering all legal, ethical, professional, sociocultural, and economic aspects to ensure the quality, safety, and efficacy of therapy
LO.20	Serve the demand of pharmaceutical and medical devices, either by prescription or non-prescription, accurately and safely
LO.21	Manage pharmaceutical and medical devices, according to prevailing standards
LO.22	Perform formulation, manufacturing and quality assurance of pharmaceutical preparations, on the basis of pharmaceutical science and technology
LO.23	Communicate and collaborate with patients, colleagues, and other health professionals, related to rational drug therapy, in order to achieve improved health and quality of life
LO.24	Participate in preventive and promotive efforts to improve the quality of public health
LO.25	Be introspective and do self development according to the development of pharmaceutical science and technology

The following **curriculum** is presented:

1st SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
1.	FAF501	SPECIALITIES FOR DRUGS AND MEDICINAL DEVICES	2	2.07
2.	AKK503	ACCOUNTING	1	1.03
3	FAK501	APPLIED PHARMACOKINETIC	2	2.07
4	FAT501	APPLIED PHARMACOTHERAPY	2	2.07
5	FAF502	MANAGEMENT OF QUALITY	2	2.07
6	MNG501	MANAGEMENT OF PRODUCTION	2	2.07
7	KLF504	INTERNSHIP IN COMMUNITY PHARMACY	8 6	8.28 24.83
	TOTAL		25	44.48

2nd SEMESTER

	Code	Courses	Credits (sks)	ECTS cr-eq
1.	KLF 507/ KLF 509	INTERNSHIP IN CLINICAL PHARMACY/INDUSTRIAL PHARMACY	10	41.88
	TOTAL		10	41.38