



ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes

Biology Education

Biology

Chemistry

Chemistry Education

Master's Degree Programmes

Biology Education

Chemistry Education

Provided by

Universitas Negeri Yogyakarta, Indonesia

Table of Content

A About the Accreditation Process.....	3
B Characteristics of the Degree Programmes	5
C Expert Report for the ASIIN Seal	9
1. The Degree Programme: Concept, content & implementation	9
2. Exams: System, concept and organisation.....	36
3. Resources	40
4. Transparency and documentation.....	52
5. Quality management: quality assessment and development	55
D Additional Documents	59
E Comment of the Higher Education Institution (15.05.2026)	60
F Summary: Expert recommendations (27.05.2026)	65
G Comment of the Technical Committees (09.06.2026).....	66
Technical Committee 09 – Chemistry, Pharmacy (09.06.2026)	66
Technical Committee 10 – Life Sciences (08.06.2026)	67
H Decision of the Accreditation Commission (26.06.2026)	68
Appendix: Programme Learning Outcomes and Curricula	70

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for ¹	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC) ²
Sarjana Kimia	Bachelor of Chemistry	ASIIN	ASIIN, 20.03.2020 – 30.09.2025	09
Sarjana Pendidikan Kimia	Bachelor of Chemistry Education	ASIIN	ASIIN, 20.03.2020 – 30.09.2025	09
Magister Pendidikan Kimia	Master of Chemistry Education	ASIIN	ASIIN, 20.03.2020 – 30.09.2025	09
Sarjana Biologi	Bachelor of Biology	ASIIN	ASIIN, 20.03.2020 – 30.09.2025	10
Sarjana Pendidikan Biologi	Bachelor of Biology Education	ASIIN	ASIIN, 20.03.2020 – 30.09.2025	10
Magister Pendidikan Biologi	Master of Biology Education	ASIIN	LAMDIK ³ 04.03.2024 – 03.03.2029	10
Date of the contract: 16.09.2025 Submission of the final version of the self-assessment report: 18.11.2025 Date of the audit: 11.03. – 13.03.2026				
Prof. Dr. Frank Hellwig, University Jena Prof. Dr. Veronika Hellwig, Technische Hochschule Lübeck Prof. Dr. Uwe Strotmann, Westphalian University of Applied Sciences Recklinghausen Medina Andini, M.Pd., SMA Khadijah Surabaya				

¹ ASIIN Seal for degree programmes² TC: Technical Committee for the following subject areas: TC 09 – Chemistry; TC 10 – Life Sciences³ Lembaga Akreditasi Mandiri Kependidikan

Jihan Wardani, Master's student, Universitas Gadjah Mada	
Representative of the ASIIN headquarter: Rainer Arnold	
Responsible decision-making committee: ASIIN Accreditation Commission	
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2014 Subject-Specific Criteria of Technical Committee 09 – Chemistry as of 29.03.2019 Subject-Specific Criteria of Technical Committee 10 – Life Sciences as of 28.06.2019	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF ⁴	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Ba Biology	Sarjana Sains Biologi (S.Si.) / Bachelor of Science in Biology	-	6	Full time	no	8 Semester	146 SKS (234 ECTS)	Odd semester/ 1997
Ba Biology Education	Sarjana Pendidikan Biologi (S.Pd.) / Bachelor of Education in Biology	-	6	Full time	no	8 Semester	146 SKS (234 ECTS)	Odd semester/ 1984
Ma Biology Education	Magister Pendidikan Biologi (M.Pd.) / Master of Education in Biology	-	7	Full time	no	4 Semester	40 SKS (128 ECTS)	Odd semester/ 2014
Ba Chemistry	Sarjana Sains Kimia (S.Si.) / Bachelor of Science in Chemistry	-	6	Full time	no	8 Semester	146 SKS (234 ECTS)	Odd semester/ 1997
Ba Chemistry Education	Sarjana Pendidikan Kimia (S.Pd.) / Bachelor of Education in Chemistry	-	6	Full time	no	8 Semester	150 SKS (240 ECTS)	Odd semester/ 1984

⁴ EQF = The European Qualifications Framework for lifelong learning

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF ⁴	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
Ma Chemistry Education	Magister Pendidikan Kimia (M.Pd.) / Master of Education in chemistry	-	7	Full time	no	4 Semester	40 SKS (128 ECTS)	Odd semester/ 2014

Introduction

Universitas Negeri Yogyakarta (UNY) traces its roots to teacher education programmes at Gadjah Mada University and the Institute of Teacher Education, which were merged to form IKIP Yogyakarta (Yogyakarta Institute of Teacher Education and Educational Sciences) on 21 May 1964. For decades IKIP Yogyakarta focused on training teachers and developing educational sciences, gradually expanding its faculties, programmes, and facilities in line with Indonesia's growing need for qualified educators. On 4 August 1999 IKIP Yogyakarta was transformed into Universitas Negeri Yogyakarta, broadening its mandate beyond teacher education to include a wider range of academic disciplines while retaining a strong identity as an education-focused institution.

Universitas Negeri Yogyakarta is organized as a public university led by a rectorate at the top, supported by vice-rectors who oversee key areas such as academics, finance and resources, student affairs, and cooperation or partnerships. Below the central leadership, UNY is divided into multiple faculties, each headed by a dean and structured into departments and study programmes. The university also has supporting bodies and units—such as quality assurance and education development institutes, business and enterprise management units, international affairs and partnership offices, and various technical service units (library, health services, legal aid, etc.)—which provide academic, administrative, and community service support across the institution.

UNY now comprises 11 faculties (Education and Psychology, Languages, Arts, and Culture, Mathematics, and Natural Sciences, Social Sciences, Law, and Political Science, Engineering, Health and Sport Sciences, Economics and Business, Vocational Training, Medicine, Law, Psychology).

UNY has a large student body, with currently estimates of around 28,000 + active students enrolled across its programmes. The university employs approximately 1,000 academic staff/lecturers across the faculties. UNY offers 152 study programmes (PhD 27, Master 41, Bachelor 81, Professional 3), currently 44 of them are internationally accredited.

Education remains UNY's primary and most established research area, covering both theory and practice across all education levels. Key themes include curriculum development and evaluation, teacher education and professional development, educational psychology and learning sciences, instructional design, assessment, and evaluation, inclusive education and special needs education, digital learning, blended learning, and educational technology.

Summary

The experts positively notice the following aspects:

- Students are satisfied with the degree programmes.
- Study plans are regularly updated and feedback from stakeholders is taken into account.
- Comprehensive tutorial and advisory system for students.
- Generally, employers are satisfied with the graduates' qualification profile.
- Students have good job perspectives.
- Comprehensive quality assurance system which includes all stakeholders.
- Opening of an international class in Ba Chemistry Education.

In the following areas, the experts see room for improvement:

- Students' academic mobility is rather low. Especially Master's students should be encouraged to spend some time abroad during their studies.
- It would be useful to offer an international class also in the other study programmes.
- The awarded ECTS points need to comply with the students' total workload, which needs to be verified for each course.
- The module descriptions need to be updated with respect to the content, practical laboratory work, students' total workload, and exam forms. Module descriptions should be checked for consistency by the respective programme coordinators.
- Safety regulations and measures have to be strictly followed in all laboratories (e.g. safety cabinets for the chemicals, personal protection wear). There should be regular safety audits of the laboratories.

C Expert Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

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

Evidence:

- Self-Assessment Report
- Study plans
- Module descriptions
- Homepage UNY: <https://www.uny.ac.id/>
- Homepage Faculty of Mathematics and Natural Sciences: <https://fmipa.uny.ac.id/>
- Homepage Ba Biology: <https://biologi.fmipa.uny.ac.id/id>
- Homepage Ba Biology Education: <https://pend-biologi.fmipa.uny.ac.id/id>
- Homepage Ma Biology Education: <https://s2pbio.fmipa.uny.ac.id/>
- Homepage Ba Chemistry: <https://kimia.fmipa.uny.ac.id/>
- Homepage Ba Chemistry Education: <https://pendidikankimia.fmipa.uny.ac.id/>
- Homepage Ma Chemistry Education: <https://s2pkim.fmipa.uny.ac.id/>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The experts base their assessment of the learning outcomes on the information provided on the websites and in the Self-Assessment Report of the six study degree programmes under review.

For all programmes, Universitas Negeri Yogyakarta (UNY) has described and published Programme Educational Objectives (PEO) and Programme Learning Outcomes (PLO). While the PEO are rather general and refer to the vision and mission of the Faculty of Mathematics and Natural Sciences (FMIPA), the PLO cover a number of specific competences students should acquire in their respective degree programme. The PLO comprise four areas of competence namely attitudes & social aspects, skills, and knowledge. Both, PEO and PLO of each degree programme are published on the respective programme's webpage.

The experts refer to the Subject-Specific Criteria (SSC) of the Technical Committee Life Sciences as a basis for judging whether the intended learning outcomes of the Bachelor's degree programme Biology, the Bachelor's degree programme Biology Education, and the Master's degree programme Biology Education as defined by UNY, correspond with the competences as outlined by the SSC.

Graduates of the Bachelor's degree programme Biology (BB) should understand the basic biological processes and should be capable of applying the scientific and technological methods of the biological sciences. In addition, graduates should acquire relevant scientific knowledge in the different biological areas such as botany, zoology, biochemistry, biostatistics, molecular biology, cell biology, ecology, plant & animal physiology, and related natural sciences (chemistry, physics). They learn to work in a team and to carry out practical work in a laboratory and in the field. In addition, graduates should be able to work scientifically and be familiar with technological innovations and the use and preservation of biological resources.

Graduates of the Bachelor's degree programme Biology should understand the basic biological processes and should be capable of applying the scientific and technological methods of the biological sciences. In addition, graduates should acquire relevant scientific knowledge in the different biological areas such as botany, zoology, biochemistry, biostatistics, molecular biology, cell biology, ecology, plant & animal physiology, and related natural sciences (chemistry, physics). They learn to work in a team and to carry out practical work in a laboratory and in the field. In addition, graduates should be able to work scientifically and be familiar with technological innovations and the use and preservation of biological resources.

The programme is designed as a general biology programme with some specialization options by selecting elective modules and particularly in the course of the final research project. The programme educational objectives and learning outcomes are expected to equip the graduates with life skills required to develop and adapt to the wide spectrum of possible occupations. Biology graduates have manifold job opportunities, which includes research assistants, teachers/lecturers, entrepreneurs, environmental consultants and they can find a suitable occupation in companies, academia, or public institutions.

Graduates of the Bachelor's degree programme Biology Education (BBE) should understand the basic biological processes and be capable of applying the scientific and pedagogical methods of the biological sciences. In addition, graduates should acquire relevant scientific knowledge in the different biological areas such as botany, zoology, biotechnology, microbiology, molecular biology, cell biology, and related natural sciences (chemistry, physics).

Furthermore, the students should be able to conduct independent laboratory and field-work, plan, implement, assess, and follow up the educational biology learning process and be able to design and perform experiments in biology learning to collect, analyse, and interpret data to solve biological issues, they 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, students should be qualified to conduct life-long learning and work effectively, both individually and in a team, to demonstrate scientific, critical, and innovative attitude in biology learnings, laboratory works, and environmental care.

The Bachelor's degree programme Biology Education is designed to produce competitive graduates with competences to work as biology educators/teachers, who are able to plan, implement, evaluate, and develop modern biology learning. As junior research assistants, graduates should be able to examine issues in biology and biology learning by implementing scientific methods and be able to design and carry out research projects in the area of biology education. As entrepreneurs, graduates should be qualified to manage a business unit and to develop local biological-based business ideas through innovation and creativity.

According to the tracer studies conducted by UNY, most graduates of the Bachelor's degree programme Biology Education work as teachers in secondary schools all over Java and other areas in Indonesia. Some join Master's degree programmes, teach as lecturers, or become trainers at public educational centres. Students and alumni confirm that graduates mostly work as teachers in senior and junior high schools. However, students also acquire educational competences and competences related to entrepreneurship and research, as some of them are interested in joining Master's or PhD programmes.

The goal of the Master's degree programme Biology Education (MBE) is to impart the necessary professional skills (pedagogic, personal, and social) in biology, which are needed to become a successful teacher, education manager, or researcher. To this end, graduates should master advanced theoretical principles in biology and be able to plan and conduct advanced biological experiments. In addition, they should understand the field of biology education in theory and practice, to develop and apply biology teaching techniques and methods, and to analyse education management policies and curricula. Finally, they should be able to design and carry out complex research activities in the area of biology education and be able to take over leadership functions in the education sector.

The experts refer to the Subject-Specific Criteria (SSC) of the Technical Committee Chemistry, Pharmacy as a basis for judging whether the intended learning outcomes of the Bach-

elior's degree programme Chemistry, the Bachelor's degree programme Chemistry Education, and the Master's degree programme Chemistry Education as defined by UNY, correspond with the competences as outlined by the SSC.

The goal of the Bachelor's degree programme Chemistry (BC) is to impart essential competencies in mathematics, the natural sciences and the core subjects of chemical sciences (inorganic, organic, physical, and analytical chemistry, biochemistry). 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. Moreover, the graduates should be capable of using the acquired knowledge and skills to find solutions to practical chemical problems and for conducting scientific work. Finally, they should be familiar with chemical hazards and problems that are relevant for the community and be able to apply appropriate means to solve these problems, in order to improve the quality of people's lives.

Graduates of the chemistry programme have several job opportunities; they can work in the chemical or petrochemical industry as well as in research institutes or in the public administration. The majority of chemistry graduates work in sectors such as chemical and pharmaceutical industry, oil and gas companies, mining and polymer industries, environmental research and monitoring institutions, and public agencies.

During the course of the Bachelor's degree programme Chemistry Education (BCE), students should acquire a basic knowledge of natural sciences and gain methodological and educational competences in the chemical sciences (analytical chemistry, organic chemistry, inorganic chemistry, physical chemistry, and biochemistry) in order to learn about the structure, dynamics, and energy, as well as the basic principles of separation, analysis, synthesis and characterization of chemicals or complex samples. Furthermore, graduates should also be able to carry out practical work in laboratories and to prepare experiments. Moreover, students should be familiar with the safe handling of laboratory equipment and chemicals and have knowledge about safety and environmental issues. In addition, graduates should acquire the necessary skills to work scientifically as well as in the field of education, adhering to modern methodologies and theoretical concepts in chemistry learning and teaching. This includes designing, implementing, and evaluating chemistry learning media by utilizing Information and Communication Technology. This should qualify graduates to handle chemistry-learning problems and to provide quality chemistry learning that is conducted in classroom or institutions based on scientific data and analysis. Most of the

graduates of the Bachelor's degree programme Chemistry Education will find a suitable occupation as high school teachers, managers of educational institutions, junior researchers, or entrepreneurs.

The goal of the Master's degree programme Chemistry Education (MCE) is to impart the necessary professional skills (pedagogic, personal, and social) in chemistry, which are needed to become a successful teacher, education manager, or researcher. To this end, graduates should master advanced theoretical principles in chemistry and be able to plan and conduct advanced chemical experiments. In addition, they should understand the field of chemistry education in theory and practice, to develop and apply chemistry teaching techniques and methods, and to analyse education management policies and curricula. Finally, they should be able to design and carry out complex research activities in the area of chemistry education and consequently take over leadership functions in the education sector.

Supplementing the subject-related qualification objectives, students of all degree programmes should have adequate competences in oral and written communication skills, be capable of working autonomously as well as in a team-oriented manner and be able to conduct research activities. Furthermore, they should have trained their analytical and logical abilities, be able to apply information and communication technology, and show a social and academic attitude. Finally, students should acquire communicative and language skills and should develop a strategy for life-long learning.

Some graduates of the Master's programmes continue with their academic education and join a PhD programme, but most become teachers at high schools or universities. However, they receive a higher salary and have a higher position than Bachelor graduates usually have. In addition, they can teach at universities or work as consultants in the area of education.

Many students mention teaching in high schools or at universities as a primary career path, while some prefer pursuing opportunities in research, academia, and industry. International students share their experiences with course materials and instruction in English, noting that while most courses are taught in Bahasa Indonesia, most teachers use English-language materials and provide additional support for international students.

In the meeting with the programme coordinators, the experts ask about the employability of the chemistry and biology graduates. The programme coordinators shared that there is a high demand particularly for teachers at both public and international schools. They also highlight job opportunities in research, companies, and lecturing positions at universities. The discussion also reveals how some alumni have pursued further studies or engaged in

research and entrepreneurial ventures, including post-pandemic shifts toward employment in industries like cosmetics and food.

The experts conclude that the objectives and intended learning outcomes of the degree programmes adequately reflect the intended level of academic qualification of level 6 (Bachelor) and 7 (Master) of the European Qualification Framework. In addition, the programmes correspond sufficiently with the ASIIN Subject-Specific-Criteria (SSC) of the Technical Committee 10 – Life Sciences (Ba Biology, Ba Biology Education, and Ma Biology Education) and the SSC of the Technical Committee 09 – Chemistry, Pharmacy (Ba Chemistry, Ba Chemistry Education, and Ma Chemistry Education).

Criterion 1.2 Name of the degree programme

Evidence:

- Self-Assessment Report

Preliminary assessment and analysis of the experts:

UNY awards a Bachelor of Science (B.Sc.) or Sarjana Sains (S.Si.) degree to the graduates of the Bachelor's degree programmes Biology and Chemistry, a Bachelor of Education (B.Ed.) or Sarjana Pendidikan (S.Pd.) degree to the graduates of the Bachelor's degree programmes Biology Education and Chemistry Education, and a Master of Education or Magister Pendidikan (M.Pd.) to the graduates of the Master's degree programmes Biology Education and Chemistry Education.

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

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report
- Study plans
- Module descriptions
- Homepage UNY: <https://www.uny.ac.id/>
- Homepage Faculty of Mathematics and Natural Sciences: <https://fmipa.uny.ac.id/>
- Homepage Ba Biology: <https://biologi.fmipa.uny.ac.id/id>

- Homepage Ba Biology Education: <https://pend-biologi.fmipa.uny.ac.id/id>
- Homepage Ma Biology Education: <https://s2pbio.fmipa.uny.ac.id/>
- Homepage Ba Chemistry: <https://kimia.fmipa.uny.ac.id/>
- Homepage Ba Chemistry Education: <https://pendidikankimia.fmipa.uny.ac.id/>
- Homepage Ma Chemistry Education: <https://s2pkim.fmipa.uny.ac.id/>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

All six degree programmes under review are offered by the Faculty of Mathematics and Natural Sciences (FMIPA) of Universitas Negeri Yogyakarta (UNY).

The Bachelor's degree programmes under review are designed for four years and are offered as full-time programmes. In the Bachelor's programmes Biology, Biology Education, and Chemistry programmes, 144 credit semester units (SKS) need to be achieved by the students (this is equivalent to 234 ECTS points). The curriculum of the Chemistry Education programme encompasses 150 SKS (240 ECTS points). The Master's degree programmes Biology Education and Chemistry Education are also full time study programmes, which are designed for two years and encompass 40 SKS (128 ECTS points).

All undergraduate programmes at UNY are designed to be completed in 8 semesters or four academic years with a maximum of 14 semesters or 7 academic years. Each semester is equivalent to 14 weeks of learning activities. Besides these learning activities, there is one week for midterm exams and one week for final exams. The odd semester starts in August and ends in January of the following year, while the even semester last from February to July.

The curricula of the Bachelor's programmes consist of university requirements and compulsory and elective courses determined by UNY and the respective departments. University requirements such as Language, Sports, Pancasila, Religion, and Social and Cultural Sciences are courses that need to be attended by all undergraduate students at UNJ. These courses are usually offered in the first two semesters of studies, in addition to courses conveying basic knowledge of natural sciences and mathematics.

Courses on the different subject-specific sciences and education are offered from the third to the eighth semester. Elective courses can be taken from the third year of study. Students usually choose elective courses that relate to their thesis and/or their individual interests. During the last two semesters, students must also complete the undergraduate thesis and the community service.

The modules within the curriculum are developed based on curriculum evaluations conducted every four or five years, involving revisions to module titles, content, references, as well as modifications to assessment methods and awarded credits. The curriculum structure of each degree programme is designed to meet the competency standards of undergraduate education in Indonesia and are aligned with the National Higher Education Standards set by the Indonesian Directorate General of Higher Education.

The curriculum consists of university requirements and compulsory and elective courses determined by UNY and the respective departments. University requirements are courses that need to be attended by all undergraduate students at UNY. There are eight university requirements: Social Literacy and Humanity, Digital Transformation, Bahasa Indonesia, Religion, Pancasila, Civic Education, Entrepreneurship, and English. These courses encompass 18 SKS and are offered in the first three semesters of studies, in addition to courses conveying basic knowledge of natural sciences and mathematics.

In addition to the compulsory modules, the curricula of the BB, BBE, BCE, and BC programmes include a diverse range of electives, in order to provide students with opportunities to broaden and deepen their knowledge and skills beyond the scope of the core curriculum. These modules are designed to offer flexibility, enabling students to explore subject areas aligned with their individual interests, academic goals, and future career plans. According to the curriculum structure of each programme.

Foundational modules are offered in the early semesters, providing the necessary knowledge and skills for more advanced modules in later semesters. The curriculum structure across the undergraduate programmes is implemented through a series of modules that deliver learning both in and outside of the classroom. Each module is assigned a specific number of credit points.

The BB programme provides a broad foundation in biological sciences with both theoretical and practical components. The curriculum includes core biology subjects such as cell and molecular biology, anatomy, physiology, ecology, genetics and other life-science disciplines, supported by laboratory and fieldwork to develop scientific skills.

Students gain knowledge about biodiversity, organismal structure and function, and ecological systems, preparing them for careers in research, environmental management, biotechnology, conservation, or further graduate study. The programme structure follows a semester-based credit system combining compulsory and elective courses, culminating in a final project or thesis, and emphasises hands-on lab experience and scientific inquiry typical of Indonesian biology degrees.

Aspects of Bioinformatics have been mandatorily integrated into the Bachelor of Biology curriculum. These aspects are incorporated in relevant courses such as Bioinformatics and

Computational Biology, ensuring that all students acquire competencies in data analysis, sequence alignment, and bioinformatics tools. Additionally, advanced modules such as Molecular Genetics, Cell and Molecular Biology, and Laboratory Techniques in Molecular Biology have been added to the curriculum. Laboratory sessions emphasize modern techniques, including PCR, electrophoresis, and microscopy, ensuring that graduates have solid theoretical and practical foundations in these fields.

The BBE programme at UNY is an undergraduate programme designed to prepare students to become professional biology teachers, mainly for secondary education. Its structure combines core biological sciences (such as botany, zoology, ecology, genetics, and microbiology) with education and pedagogy courses, including curriculum development, learning psychology, teaching methods, and educational evaluation. The program also emphasizes laboratory work, field studies, teaching practicum (PPL) in schools, and concludes with a final project, ensuring graduates are competent both in biological knowledge and in effective biology teaching. Within the BBE programme, research areas include biology teaching methods, learning media development, and biology literacy, focusing on improving biology education practice and pedagogy.

The BC programme at UNY focuses on building a strong foundation in chemical sciences. It combines core chemistry theory and laboratory practice across areas such as physical, organic, inorganic, analytical chemistry and biochemistry, and is structured around a semester credit system that includes compulsory and elective courses tailored to chemical knowledge and skills. Graduates gain both theoretical understanding and practical laboratory experience, preparing them for careers in research, industry, environmental science and related fields. The curriculum also integrates general academic requirements such as religion, language and civic courses as part of the higher education structure in Indonesia.

The curriculum of the BC programme is reviewed and developed in accordance with university regulations and the development of chemical content, graduate competencies, development of science and technology, and the needs of the working world (industries). Efforts to achieve the expected graduate qualification profile are done by designing courses for this study programme in line with the PLO.

The curriculum of the Bachelor of Chemistry Education comprises at least 150 credits (SKS) or 240 ECTS (where one SKS equals 1.6 ECTS) over eight semesters, including various compulsory and elective courses. Compulsory courses include university, faculty, and programme courses and thesis, internship, and community service components, all necessary to fulfil the programme's objectives. The elective courses include options within and from external programs (minor). Elective courses are undertaken to facilitate individual focus areas and assist students in their undergraduate thesis topics.

The BCE curriculum includes foundational education courses, general university-required subjects, chemistry content courses, and pedagogical/teaching courses to prepare graduates as competent chemistry educators. Students learn fundamental and advanced concepts in chemistry through a structured curriculum that includes theoretical and laboratory-based subjects such as general chemistry, organic chemistry, inorganic chemistry, analytical chemistry, and physical chemistry. This is supplemented by laboratory courses, which emphasise hands-on experimentation and scientific methodology.

Usually during the last year of studies, students must complete the community service (Kuliah Kerja Nyata, KKN). The experts discuss with the programme coordinators about the content and goal of this course. The programme coordinators explain that community service is compulsory for all Indonesian students. It has a minimum length of four weeks and often 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 their field in order to empower society.” Since the community service usually takes place in remote areas, the students cannot attend any classes during this time. The students work in interdisciplinary teams during the community service in order to advance the society and bring further development about. This course was introduced at all Indonesian Universities in 1971. The assessment of the community service consists of a work plan, programme implementation, and activity report. The experts understand that students should work for the benefit of the community and the Indonesian society during the community service and support this concept.

The members of the teaching staff explain on demand of the experts that they offer possible topics for the final projects according to their own research projects. All members of the teaching staff supervise theses; teachers may not supervise more than seven students conducting their final projects. Students have to design a research proposal (this proposal is developed in the “proposal seminar”, which usually takes place in the sixth semester) with a time schedule for the project, which is discussed with the academic or thesis advisor. If they agree, students apply formally for being allowed to work on the suggested topic. Students can also develop their own concepts for their Bachelor’s thesis, and it is possible to conduct the Bachelor’s thesis outside UNY.

The experts discuss with the programme coordinators in which courses practical work in schools is included. They learn that for providing in-field learning experience, the educational undergraduate programmes include a school internship programme. Students will spend at least six weeks at a school in order to gain practical teaching experience. They also learn pedagogical strategies from their mentor teacher at the school. By the end of the

programme, students are required to write a fieldwork report. The final grade for the internship programme is based on the students' performance at the school and the fieldwork/internship they submit.

In the BB and BC programmes, students undertake a single internship programme, usually in research institutions, laboratories, industries, or government agencies relevant to their field. These internships are designed to strengthen students' scientific competencies by applying theoretical knowledge in real-world contexts, developing practical and technical skills, and enhancing soft skills such as communication and problem-solving. Assessment is conducted through a combination of student reports, evaluations by field supervisors, and academic supervisor reviews, using rubrics aligned with the programme's learning outcomes. The assessment procedures are detailed in the official Internship Handbook.

The Master's degree programmes Biology Education and Chemistry Education are designed for a minimum study period of four and a maximum of eight semesters. Students conduct research activities and write a thesis related to their research field in the final year. In addition, Master's students need to present their research results at an international conference or submit them to an international journal.

The study plans are aligned with the Indonesian National Qualifications Framework, the National Higher Education Standards, and the Indonesian Chemistry and Biology Consortium standards. The Master's programmes consist of two groups of courses, namely general university courses and programme specific courses (compulsory courses and electives).

The course distribution for the six study programmes is depicted in the following table:

Course Types	Credits (in SKS)					
	BC	BCE	MCE	BB	BBE	MBE
Compulsory courses						
University courses	14	16	-	14	14	-
Faculty courses	4	4	7	4	4	7
Basic Pedagogic courses	-	8	-	-	8	
Subject Specific Pedagogy Courses	-	30	12	-	22	15
Subject Matter Courses	80	54	11	82	60	8
Internship	6	6	-	6	6	

Community services	6	6	-	6	6	
Undergraduate/Postgraduate thesis	8	8	6	8	8	6
Elective courses + Minors	28	18	4	26	18	4
Total	146 (234 ECTS)	150 (240 ECTS)	40 (128 ECTS)	146 (234 ECTS)	146 (234 ECTS)	40 (128 ECTS)

Table 1: Course distribution, Source: UNY Self-Assessment Report

Since UNY has the goal to become internationally more visible and aims for further internationalising its degree programmes, the experts discuss with the programme coordinators and students if any classes at FMIPA are taught in English. The programme coordinators explain that there is a new international class in the Bachelor's degree programme Chemistry Education, which is mostly taught in English. The newly opened (2025) International Undergraduate Program (IUP) at Universitas Negeri Yogyakarta is designed as a flagship programme to prepare globally competent graduates through an international learning environment, English-medium instruction, and strong international academic exposure. The programme supports UNY's vision of becoming a globally recognized university by integrating international collaboration and global learning experiences into undergraduate education.

Currently, the IUP offers seven study programmes, namely English Language Education, Chemistry Education, Public Administration, Information Technology, Sport Science, Management, and Accounting. Each programme admits approximately 20 students per class, allowing for a more focused and internationally oriented learning environment.

A key feature of the programme is its extensive international academic exposure. Students will have opportunities to participate in various global learning activities such as student exchange programs, short courses or summer programs, visiting or guest lectures, international conferences and seminars, internships, study visits, international science expos, publication internships, and research collaborations. These activities aim to enhance students' global competencies and intercultural experiences.

Especially in the Chemistry Education IUP program is also supported by partnerships with several international universities. According to the programme flyer, partner institutions include Universiti Pendidikan Sultan Idris (Malaysia), Trabzon University (Turkey), University of Helsinki (Finland), Atatürk University (Turkey), Ho Chi Minh City University of Education (Vietnam), National Taiwan Normal University (Taiwan), Khon Kaen University (Thailand), and Karadeniz Technical University (Turkey). These collaborations are designed to

facilitate academic exchanges, joint research activities, and international learning opportunities for students and faculty members.

However, in the other study programmes English textbooks are used and some presentations are done in English. In addition, some international guest lectures are invited, who give classes in English. Nevertheless, the experts are convinced that it would be very useful to offer an international class in the other three undergraduate programmes, in which all lectures are delivered in English. In addition, the undergraduate programmes should also put more English courses into their curricula. This would further improve the students' English proficiency and better prepare them for the job market. In the discussion with the experts, students and alumni support this point of view. UNY is working to improve English proficiency through new curriculum requirements implemented in 2025, which include special courses on international biology instruction and comparative studies of international curriculum. The discussion also covers the university's approach to teaching modern science topics like AI, bioinformatics, and green chemistry through interconnected courses in biochemistry, cell and molecular biology, and molecular genetics.

Research groups in BB focus on animal biosystematics, animal reproduction and developmental biology, biotechnology, plant diversity, plant physiology and molecular biology, and environmental science and applied microbiology. Research groups in BBE and MBE concentrate on biology education curriculum, media and digitalization of biology learning, strategies and assessment in biology education, and the development of learning resources and teaching materials. Research groups in BC treat with electrochemistry, material and photocatalyst, renewable energy, surface chemistry, advanced and functional polymers, synthetic organic chemistry, and organic chemistry of natural materials. Meanwhile in BCE and MCE, the research topics are focused on chemistry education in context, innovative models in chemistry learning and authentic assessment in chemistry learning.

The experts ask about teacher certification requirements in Indonesia, where graduates must participate in a government-run professional teacher programme to obtain a professional certification, though many private schools still hire them without certificates. The programme coordinators explain that the study plans of the educational programmes include international elements like Cambridge and IB curricula, along with a micro-teaching programme and teaching practice opportunities in high schools. Regarding programme learning outcomes (PLOs), the university conducts regular reviews with stakeholders every five years, with adjustments made through course materials rather than direct PLO changes and focus on improving English and digital competencies based on stakeholder feedback.

During the meeting with the different stakeholders (representatives from private and public high schools as well as from companies, research institutions, and universities) the experts discuss the collaboration between the UNY and employers, including high schools and industry partners. Participants share their experiences with UNY's graduates, highlighting both strengths and areas for improvement, including the graduates' readiness for industry and teaching roles. Key points include their general satisfaction with graduates' technical skills and performance, but concerns were raised about their communication skills and English language abilities, particularly for international collaboration. Additionally, cooperation with research institutions and companies could be further strengthened e.g. by conducting internships there so that students can get first-hand experience with advanced instruments and modern practical techniques. Industry representatives point out their positive experiences with university collaboration on research projects, particularly in areas like phyto-medicine and herbal medicine development. Finally, the experts see that there are successful alumni examples, including one who founded a technology company and another who established a successful chicken farming business. Based on the feedback from stakeholders, the experts suggest improving students' communications skills, e.g. by introducing more group projects and presentations. Additionally, it would be very useful to strengthen the cooperation with companies and research institutions, e.g. through the internship programme so that students can get first hands experience with state-of-the-art instruments and practical techniques.

Students and alumni express their general satisfaction with the curricula of the six study programmes under review, noting that they adequately cover relevant subjects and include sufficient flexibility for students to pursue additional areas of interest.

Periodic Review of the Curriculum

Curriculum adjustments have been undertaken in recent years to ensure a more robust alignment between the curriculum and the students' intended competence profile. These adjustments were based on both internal evaluations and external considerations, reflecting the programme's commitment to continuous improvement. Curriculum evaluation is formally conducted every four years in response to changes in national education policy or stakeholder input. In addition to these periodic reviews, regular evaluations are carried out through programme meetings at the end of each semester, allowing for timely identification of areas needing revision.

Adjustments were also caused by feedback from various stakeholders, including alumni, employers, and industry representatives. This feedback indicated a growing demand for

competencies in digital literacy, data analysis, and applied research. In response, the programme introduced new elective courses and updated existing course content to ensure relevance to current professional and academic demands.

Furthermore, findings from tracer studies revealed that although graduates generally met academic standards, there remained a need to strengthen skills in scientific communication, interdisciplinary collaboration, and soft skills to enhance employability. These findings led to refinements in learning outcomes and teaching approaches to better prepare students for the complexities of the workplace and postgraduate studies. The internal review processes, together with external accreditation efforts resulted in positive outcomes, including an increase in the proportion of students graduating on time, higher grade point averages, and improved graduate performance in terms of employment and further academic pursuits.

The experts discuss during the audit how changes in the study programmes are implemented and what UNY's focus areas in research and teaching are. UNY explains that curriculum changes are made based on government mandates and stakeholder input, including students, staff, and private sector representatives. One focus, besides teacher education is the preparation of students for new technology and entrepreneurship, with some funding provided for student business startups. The programme coordinators emphasise that the chemistry and biology programmes work in harmony to support each other, particularly in producing professional teachers who need strong knowledge bases in both subjects.

Upon request, the programme coordinators describe how the chemistry and biology programmes incorporate modern topics such as biotechnology and molecular genetics with updates made to the curriculum. The university follows a 5-year review cycle for curriculum changes, but makes smaller adjustments annually based on stakeholders (students, alumni, employers) feedback.

International Mobility

UNY provides some opportunities for students to conduct internships and exchange programmes abroad. Students who take part in student exchanges through cooperation programmes can gain recognition of the acquired credits after obtaining approval from their undergraduate programme.

UNY and the study programmes under review actively support students' academic mobility by providing guidance to ensure that learning outcomes achieved during the mobility period are recognized and integrated into the students' study plans. Students complete a course recognition form to ensure that the selected modules are academically relevant and fall within the same disciplinary scope. Upon completion of the mobility period, the grades

received at the host university are formally converted and matched with the corresponding modules at UNY thereby ensuring credit recognition.

During the audit, the experts discuss with the Vice Rector UNY's strategies for promoting academic mobility, including sending students and staff overseas for training, competitions, and PhD programmes, as well as inviting guest lecturers and international students for summer courses. They learn that UNY has several internationalisation programmes such as for visiting professors, joint research projects and supervision of theses, and conducting summer courses. UNY motivates teachers' and students' participation through mobility and research grants, and financial support and incentives for lecturers and students to engage in international activities, including virtual participation in conferences.

The discussion includes UNY's internationalisation efforts, with participants discussing their international collaborations primarily in Asian countries, Europe, and Australia, though not yet in America. The university collects reports from outbound students to share their experiences and uses these alumni as ambassadors to recruit international students from their home countries.

To foster academic mobility, each study programme actively promotes international cooperations, through initiatives facilitated by the International Affairs Office of UNY. Within this framework, the BB, BBE, BCE, and BC programmes have been engaged in developing and maintaining cooperation agreements with international partner institutions. These agreements are designed not only to support student exchange and joint academic activities but also to foster collaborative research and capacity building, thereby enhancing the global outlook of the programmes.

In addition, students of educational programmes can join the SEA Teacher (Southeast Asia-Teacher) project. This programme was initiated by the Southeast Asia Ministers of Education Organisation (SEAMEO) involving countries in Southeast Asia. Eleven SEAMEO member countries are collaborating on this project that is aimed to improve the quality of education in Southeast Asia, revitalize teacher education, and continue to build and improve the quality of teachers in their home country. The students usually stay for four weeks abroad.

Students' international academic mobility is supported by the Indonesian Government. For example, through Indonesian International Students Mobility Awards (IISMA), a scholarship programme from the Ministry of Education, Culture, Research and Technology starting from 2021. In addition, lecturers are encouraged to carry out joint research activities with international partners and to involve students in their projects.

The new policy of the Indonesian government actively supports any activities outside of the university by releasing a regulation on the Merdeka Belajar-Kampus Merdeka (MBKM),

which requires the university to promote students who want to spend part of their Bachelor's programme outside UNY (Minister of Education and Culture Regulation Number 3, Year 2020). UNY recognizes the courses taken by the students outside UNY, based on the comparability of the intended learning outcomes. The experts consider this regulation sufficient.

The International Affairs Office of UNY is responsible for managing and coordinating the international activities such as coordinating and managing student mobility programmes, developing and maintaining relationships with partner institutions and organisations around the world, recruiting and admitting international students, providing support and assistance to international students during their time at UNY, such as helping with housing, visa issues, and other practical matters.

The number of students in the six study programmes, who spend some time abroad, is still quite low despite students' high interest. Several students take part at the MBKM programme every year, but all of these stays were conducted in Indonesia in the context of teaching in educational institutions, projects in villages, or short term stays at other universities. At the same time, there are only a few international students. The MCE programme has three international students (one from Madagascar and two from Pakistan), while the MBE programme also has three international students (all from Pakistan).

The students confirm during the discussion with the experts that some opportunities for international academic mobility exist and that the credits acquired abroad are recognised at UNY. Students and alumni report on their experiences with the application process, for academic mobility programmes, which they find straightforward and all necessary information is accessible online. They highlight the university's efforts to promote academic mobility through programs like ISMA and international collaborations, including opportunities for conducting research projects and participating in summer courses.

The experts emphasize that it is very useful for students to spend some time abroad already during their Bachelor's studies to improve their English proficiency, to get to know other educational systems, and to enhance their job opportunities.

To attract international students, FMIPA should think about regularly conducting international summer schools. The experts are convinced that such an offer would appeal to many students, especially from Europe, and this might help to further promote the internationalisation of UNY. During the audit the experts learn that UNY does organise summer-school-type programmes, which are usually thematic, short-term, and often targeted at specific audiences (international partners, doctoral students, or selected disciplines). For example, in October 2024 UNY has organised the International Doctoral Summer School

“EcoEduTech – The Potential of AI in Reshaping Teaching and Learning for Sustainable Education”.

Regarding internationalisation efforts, the programme coordinators acknowledge challenges in encouraging student participation in international exchange programmes due to limited funding and competitive selection processes, though some collaborative research activities and online classes with international partners have been established. The Faculty of Natural Sciences and Mathematics is planning to organise their first international summer school in August 2026, which focuses on ethnomathematics. They would like to organise more similar events, but financial constraints has limited their ability to conduct more extensive internationalisation initiatives. The experts recommend that more such international summer schools should be offered by FMIPA.

A good starting point for initiating more international co-operations are the personal international contacts of the faculty members and the guest lecturers. It is also possible for students and teachers to apply to international organisations like the German Academic Exchange Council (DAAD) or British Council for receiving funds for stays abroad.

In order to foster internationalisation at UNY and for better promoting students’ academic mobility., the experts suggest including more English elements in the courses, especially in the advanced course of the third and fourth year of the bachelor’s programmes and in the Master’s programmes. Students’ English proficiency is a major hinderance for participating in international programmes and encouraging them to actively speak English, e.g. by having presentations or group projects in English, would be very beneficial. In addition, FMIPA could offer something like an English journal club. An English journal club is typically organized as regular small-group meetings (weekly or biweekly) where students read a selected academic article in English before the session. One or two students lead each meeting by summarizing the paper and presenting key points, followed by a guided discussion conducted entirely in English. A faculty member or senior student moderates the session, helps clarify language and concepts, and encourages participation, while rotating presenters ensure all students actively practice reading, speaking, and critical discussion skills. Establishing a Journal Club is a highly effective way to promote students’ English proficiency, especially in academic contexts, because it integrates language learning with real scholarly practice.

Another possibility to encourage students to go abroad is organising an “International Day”, which is usually a campus-wide annual event. It is coordinated by the university’s international office in collaboration with faculties and student organisations. It usually features cultural exhibitions, country booths, international food, student and partner presentations, language activities, and global mobility information sessions, of-ten involving international

students, alumni, and partner institutions. The event is designed to encourage cross-cultural interaction, raise awareness of international opportunities, and strengthen the university's global outlook.

In summary, the experts appreciate the effort to foster international mobility and support UNY to further pursuing this path. However, the academic mobility is still low and there is room for improvement.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Study plans
- Admission Regulation No. 48 of 2022 issued by the Minister of Education, Culture, Research, and Technology
- Homepage UNY: <https://www.uny.ac.id/>
- Homepage Faculty of Mathematics and Natural Sciences: <https://fmipa.uny.ac.id/>
- Homepage Ba Biology: <https://biologi.fmipa.uny.ac.id/id>
- Homepage Ba Biology Education: <https://pend-biologi.fmipa.uny.ac.id/id>
- Homepage Ma Biology Education: <https://s2pbio.fmipa.uny.ac.id/>
- Homepage Ba Chemistry: <https://kimia.fmipa.uny.ac.id/>
- Homepage Ba Chemistry Education: <https://pendidikankimia.fmipa.uny.ac.id/>
- Homepage Ma Chemistry Education: <https://s2pkim.fmipa.uny.ac.id/>
-
- Discussions during the audit

Preliminary assessment and analysis of the experts:

According to the Self-Assessment Reports, admission procedures and policies for new undergraduate students follow the national regulations in Indonesia, specifically Regulation No. 48 of 2022 issued by the Minister of Education, Culture, Research, and Technology. The process is based on regulations that are issued by the Rector every year, which determine the selection pathways, assessment mechanisms, available study places, and registration processes. The requirements, schedule, registration venue, and selection test are announced on UNY's webpage and thus accessible for all stakeholders.

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

1. National Entrance Selection of State Universities (Seleksi Nasional Berdasarkan Prestasi, SNBP), a national admission system, which is based on the academic performance during the high school.
2. Joint Entrance Selection of State Universities (Seleksi Nasional Berbasis Tes, SNBT). This nationwide computer-based written test (UTBK) is held every year for university candidates. It is a nationwide online test (subjects: Mathematics, Bahasa Indonesia, English, Physics, Chemistry, Biology, Economics, History, Sociology, and Geography), which may be supplemented with other criteria according to the regulations set by the different universities (Academic State Universities, Vocational State Universities, or State Islamic Universities).
3. Institution Independent Selection (Seleksi Mandiri, SM). It offers an additional opportunity for students who are unsuccessful in the SNBP or SNBT processes. This admission pathway considers academic and non-academic achievements. Prospective students who choose the academic accomplishment pathway can apply using computer-based tests (CBT), SNBT scores from the same year, high school study reports, the Science Olympiad, or a strong interest in the academic discipline. Prospective students can apply for the non-academic achievement pathway based on their achievements in sport (preferably at the national or international level), art, and religion at the district/city level, as well as competitions during senior high school that are supported by championship certificates and validated by credible institutions. Furthermore, UNY accepts students through agreements with local governments in Indonesian provinces and other universities.

The SNBP and SNBT schemes are fully prepared by the Indonesian Committee for National Selection of Prospective Students Admission (Seleksi Nasional Penerimaan Mahasiswa Baru, SNPMB), while UNY fully regulates the SM scheme. All information about the requirements, how to register, the stages of the registration process, exam schedules, and announcement of selection results are managed by SNPMB.

There are several pathways for Master's students' admission. First there is a Computer-Based Test (CBT), which is administered online, allowing applicants to take the test from their current location without coming to campus. This pathway is available for both domestic and international applicants. Secondly, there is the Portfolio-Based Selection, which is based on the applicant's academic and professional portfolio, such as TOEFL/TPA scores, academic publications, awards, and other achievements. They are exempted from taking the CBT. Third, the CBT Defer Pathway, which is a special pathway for applicants who require a Letter of Acceptance (LoA) for scholarship applications. By university regulations,

successful applicants may defer their studies for 1–2 semesters. Fourth, the Collaboration Pathway, which is an admission pathway through institutional collaboration between UNY and partner organisations (government or private sector). The selection process (CBT or portfolio) and financial arrangements are determined based on the collaboration agreement.

Provisions regarding the selection mechanism for new student admissions can be accessed via the UNY homepage which can be accessed by all prospective students both domestically and abroad. Apart from information regarding entrance selection, the website also provides information about service standards and mechanisms for carrying out lecture activities as outlined in academic guidelines.

International students are required to apply using the specific admissions process. However, the experts notice that the Self-Assessment Report states that information for international applicants is available on the admission website. However, while the front page is in English, several subsequent pages appear to be mainly in Bahasa Indonesia. This may make it difficult for international students to access complete information. To this end, the experts ask to provide full admission information in English for international applicants on the website.

In the four undergraduate programmes, the number of applications by far exceeds the number of available study places, which is between 105 and 80 students per year. The maximum intake is based on the number of teachers and the capacity of the available facilities.

The details are depicted in the following tables:

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2023/2024	1691	100	88	8.52 %
2022/2023	3356	100	107	3.84 %
2021/2022	2891	100	136	4.70 %
2020/2021	2900	100	129	3.69 %
2019/2020	3134	100	144	3 %

Table 2: New Students' Admission BB, Source: UNY Self-Assessment Report

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2023/2024	1199	80	99	8.26%
2022/2023	1289	80	96	7.45%
2021/2022	2793	80	103	3.69%
2020/2021	2033	80	107	5.26%
2019/2020	2364	80	83	3.51%

Table 3: New Students' Admission BBE, Source: UNY Self-Assessment Report

Year	Applicants	Available Seats	Admitted Students	New Students	Admission Rate (%)
2023/2024	134	50	75	60	56%
2022/2023	110	50	77	68	70%
2021/2022	119	50	67	58	56.3%
2020/2021	24	50	16	15	66.7%

Table 4: New Students' Admission MBE, Source: UNY Self-Assessment Report

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2023/2024	1203	80	162	13.5%
2022/2023	2092	105	133	6.3%
2021/2022	2172	80	146	6.7%
2021	2092	105	133	6.3%
2019/2020	2559	80	142	5.5%

Table 5: New Students' Admission BC, Source: UNY Self-Assessment Report

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2024/2025	486	80	64	13.17%
2023/2024	591	80	71	12.01%
2022/2023	629	80	88	13.99%
2021/2022	1304	80	94	7.21%
2020/2021	1052	80	118	11.22%
2019/2020	1483	80	82	5.53%

Table 6: New Students' Admission BCE, Source: UNY Self-Assessment Report

Year	Applicants	Available Seats	Admitted Students	Admission Rate (%)
2023/2024	111	40	61	54,95%
2022/2023	129	40	77	59,69%
2021/2022	140	40	76	54,29%
2020/2021	12	40	7	58,33%

Table 7: New Students' Admission MCE, Source: UNY Self-Assessment Report

Undergraduate students at UNY have to pay tuition fees, which vary according to the operational costs of learning in the respective study programme. The tuition fees for the four undergraduate programmes under review vary from IDR 500,000 (€ 26.03) to IDR 6,800,000 (€ 354.05) per semester. The concrete tuition fees are determined by the economic capacity of the student, their parents, or other financial sponsors, thereby ensuring a fair and needs-based tuition structure. Master's programmes do not apply this principle and offer a single tuition fee of IDR 8,500,000 (€ 442.56) per semester.

To further support equal access, a wide range of scholarships is available. These include national-level schemes and scholarships from financial and private institutions such as Bank Indonesia, as well as various scholarships provided by local governments.

In summary, the experts 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.

Criterion 1.5 Work load and credits
--

Evidence:

- Self-Assessment Report
- UNY Academic Regulation
- Study plans
- Module descriptions
- Discussions during the audit

Preliminary assessment and analysis of the experts:

Based on the National Standards for Higher Education of Indonesia (SNPT), all six programmes under review use a credit point system called Satuan Kredit Semester (SKS).

According to UNY's Academic Regulations (based on Rector Decree No. 17/2021), one SKS equals 170 minutes (2.83 hours) per week or 45.28 hours per term. For lectures this includes:

- 50 minutes of scheduled contact with the teaching staff in learning activities,
- 60 minutes of structured activities related to lectures, such as doing the assignments, writing papers, or studying literature,
- 60 minutes of independent activities outside the classroom to obtain a better understanding of the subject matters and to prepare academic assignments such as reading references.

For lab work, final project, fieldwork, community service and other similar activities, 1 SKS is equivalent to 170 minutes a week of student's activities.

Bachelor's students with high academic achievement can take more courses (up to 24 SKS) to speed up their studies; the academic advisor must approve this.

According to the Self-Assessment Report, UNY uses a fixed conversion factor of 1.6 between SKS and ECTS points. The reasoning behind this calculation is that one SKS equals 170 minutes (2.83 hours). As the semester lasts for 16 weeks $2.83 \times 16 = 45.28$ hours per semester. As UNY calculates 28 hours of students' workload for one ECTS point, this total workload is then divided by 28 to get the conversion factor: $45.28 / 28 = 1.6$.

For the Master's programmes UNY calculates a fixed conversion factor of 3.2 between SKS and ECTS. It remains unclear, why this is done. The experts point out that, the study plans mention different ECTS points (e.g. 122.62 ECTS for MBE) and the respective information in the different documents is not consistent. UNY should check the different documents

and make sure that the students' total workload is displayed correctly and consistently in all relevant documents.

The experts point out that there can be no fixed conversion rate between SKS and ECTS points. Therefore, the ECTS points need to be calculated separately for each course. This is necessary, because the time students need for self-studies is different for each course. Especially the courses with the high share of self-studies (Community Service, Internship, Bachelor's and Master's thesis) show, that the students spend much more time on their final projects than is currently reflected in the awarded ECTS points. UNY should follow the ECTS Users' Guide to determine the students' total workload. As described in the ECTS Users' Guide, the estimation of students' workload should include all learning activities. This is the time students typically need to complete all learning activities (such as lectures, seminars, projects, practical work, self-study and examinations). In other words, a seminar and a lecture may require the same number of contact hours, but one may require significantly greater workload than the other because of differing amounts of independent preparation by students.

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

Since the workload of the students was only estimated by the programme coordinators and these estimations seem to be too low in comparison to the actual time needed by the students, the experts ask UNY to verify the students' total workload and to adjust the awarded ECTS points. This could e.g. be done by including a respective question in the satisfaction questionnaires (see criterion 5). In any case, UNY must make sure that the actual workload of the students and the awarded ECTS credits correspond with each other and make that information transparent in the module descriptions and the study plans. (see criterion 4.1).

The dropout rate in the Bachelor's degree programmes as well as in the Master's programmes is rather low. On average, only around two students drop out each programme per year. The main reasons why students withdraw is that they transfer to a different academic programme, either at UNY or at another university.

Students from the six study programmes under review confirm in the discussion with the experts their satisfaction with theoretical and practical components and the overall workload of the study programmes. They explain that coursework is manageable, with options to choose courses based on capacity, and the workload can be spread across the semesters.

Furthermore, students highlight the importance of time management, especially for laboratory reports and practical exams.

In summary, the experts confirm that all programmes under review have a high but manageable workload. Students can give their feedback on the courses and comment if they think that the workload is too high.

Criterion 1.6 Didactic and Teaching Methodology
--

Evidence:

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

Preliminary assessment and analysis of the experts:

Various teaching and learning methods such as lectures, class and group discussions, case studies, demonstrations, assignments, simulations, experiments, field studies, teaching practise, and problem-based learning are applied in all undergraduate programmes under review. Structured activities include homework, assignments (reading or problem exercises) and practical activities. Group project assignments are given in some courses to develop students' skills in teamwork, communication, and leadership. The assignments and exercises should help students to develop their abilities with respect to critical thinking, written/oral communication, data acquisition, problem solving, and presentations.

Students are further encouraged to apply their knowledge in a series of student projects that are oriented towards teaching practice in the classroom and in laboratories. Classes and laboratories are designed in problem-based learning settings in order to introduce student-oriented teaching methods to involve all students in the learning processes and to develop their thinking and analytical skills. Problem based learning and student-centred learning is used in several courses and students are assigned to group projects and have to present their findings in front of the class. Moreover, students gain practical experience through the internship and community service activities.

The most common method of learning in the undergraduate programmes is class session, with several courses having integrated laboratory work. Lecturers generally prepare presentations to support the teaching process. In addition, several courses include teaching practice sessions or micro-teaching (i.e. students presenting teaching practice trials in front of their experts). With individual or group assignments, such as discussions, presentations,

or written tasks, students are expected to improve their academic as well as their soft skills. Laboratory work covers laboratory preparation, pre- or post-tests, laboratory exercises, reports, discussions, and presentations. In addition, practical activities should enable students to be acquainted with academic research methods. In the Master's programmes the focus is more on research activities, project-based learning, field studies, and laboratory work.

All students at UNY have access to the digital academic information system SIAKAD. The students' profiles (student history, study plan, academic transcript and grade point average/GPA, lecturer evaluation, course list) are available via SIAKAD. In addition, course materials and supporting documents compiled by the lecturers are provided via SIAKAD.

In the meeting with the teaching staff, the experts discuss online teaching practices at UNY. The participants explain that they currently use a combination of zoom and b-smart for online teaching, with the latter serving as their learning management system where materials, assignments, and quizzes are stored. Teachers also report that they still prefer to teach certain topics, particularly complex subjects in offline settings when possible. The discussion also makes apparent that teachers and students are generally satisfied with teaching methods, including online formats.

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

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

The experts appreciate that UNY has already established several mobility initiatives at Bachelor's level as well as at Master's level. However, there is still room for improvement and especially Master's students should be encouraged to spend some time abroad.

With respect to the students' workload and the credit point calculation, the experts highlight again that there cannot be a single fixed conversion factor between Indonesian credits and ECTS points because the two systems are not defined by the same unit of measurement. Indonesian credits are tied to the Indonesian curriculum structure and local definitions of study load, while ECTS are solely awarded on the basis of students' workload. For this reason, the students' total workload needs to be calculated separately for each course,

which may result in different ECTS points for courses that are awarded the same number of Indonesian credits. The experts expect to receive documentation in the course of the accreditation procedure that the students' workload, especially the time they need for self-studies was verified.

The experts support the university's plan to use the newly opened international class in the Bachelor of Chemistry Education programme as a pilot initiative for further internationalisation. To this end, it would be useful to establish step by step international classes in the other study programmes.

The experts consider criterion 1 to be mostly fulfilled.

2. Exams: System, concept and organisation

Criterion 2 Exams: System, concept and organisation
--

Evidence:

- Self-Assessment Report
- Module descriptions
- UNY Academic Guidelines

Preliminary assessment and analysis of the experts:

As described in the Self-Assessment Report, course learning outcomes are evaluated through assessment forms, which are divided into four types: 1) Lectures, 2) Practical work, 3) Internship/Community Service/MBKM, and 4) Thesis.

Assessment of learning processes and outcomes can be done in the form of quizzes, structured assignments, practicum exams, mid-semester exams, end-of-semester exams, and classroom observations. In the practical work, students are required to make a report on the observations that are evaluated by a laboratory assistant. Students are required to attend at least 75 % of the lectures and have to participate in all practical activities.

Lectures are generally assessed through attendance, assignments, Midterm Exam (UTS), and Final Semester Exam (UAS). Written exams in midterm and final exams consist of multiple-choice questions, essays, and short answers. Usually, the weight of the different forms of assessments is class activities (10%), structured academic assignments (20%), midterm exam (30%), and final semester exam (40%).

Practical work is usually assessed by test, practical activities, and reports. If theory and practical components are combined, the final grade is a combination of both. The percentage of assessment is determined by the programme in accordance with the teaching method.

Community Service and Internship are required courses in the undergraduate programmes. Their assessment is based on field activities, evaluated by the field supervisor and UNY staff members. Students are required to submit a report and consult with the field supervisor after completion.

All students at UNY are required to complete a thesis in accordance with the programme requirements, as stated in the UNY Academic Guidelines. The Bachelor's thesis consists of two stages: a proposal seminar and the thesis itself. The thesis is based on independent research under the guidance of two lecturers and usually defended before four examiners. Students' research proposals are evaluated through a proposal seminar attended by two supervisors and one lecturer. When designing their final projects Master's students consult with their academic advisor who recommend teachers, which are experts in the chosen field. Master's students can design their own research projects with the help, advice, and direction of the advisor. The final grade is based on the quality of the written thesis, literature review, research methods, originality of ideas, and performance in the seminars such as media quality, presentation skills, and discussion abilities.

With respect to exams and course requirements in the chemistry and biology programmes, students point out that practical exams in chemistry involve identifying chemicals and conducting experiments, while biology practical work includes techniques like bacterial streaking and field trips. The discussion also covers exam regulations and how students can retake failed exams. Finally, the students explain final project selection, where students work closely with supervisors to choose topics and conduct research, with some mentioning the use of digital platforms to track progress and communicate with supervisors. Students can join teachers' research projects or can suggest own topics, with some finding supervisors with research grants and others identifying research gaps through literature reviews.

The form of each exam is mentioned in the module descriptions that are available to the students via UNY's homepage and the digital platform SIAKAD. Usually, there are two written exams in each course (besides the assignments, homework, and presentations); the mid-term exam is conducted in 8th week of the semester and the final exam in 16th week.

Supplementary examinations or substitutes are permitted for students who have valid reasons (such as illness as evidenced by a doctor's letter or for students with disabilities or other limitations with compensation agreed upon individually) after obtaining approval from the respective teacher.

All stages of the learning assessment results are announced to students to be checked for correctness. If there is an error by the lecturer in giving grades, students can apply for correction of grades to the teacher by bringing evidence in the form of exam files and structured assignments. Students can access their grades at any time through SIAKAD.

Each of the grades carries a numeric value for the purpose of calculating a weighted average on a 4.00 scale. These values are indicated below:

(Scale 0 – 100)	Mark	
	Letter	Number
86 – 100	A	4,00
81 – 85	A-	3,67
76 – 80	B+	3,33
71 – 75	B	3,00
66 – 70	B-	2,67
61 – 65	C+	3,33
56 – 60	C	2,00
41 – 55	D	1,00
0 – 40	AND	0,00

Table 8: Numeric value of the grades, Source: SAR UNY

The experts discuss the assessment methods with the programme coordinators in particular practical teaching assessments and thesis supervision. The discussion reveals that while laboratory work is conducted informally in some courses, module descriptions may not always clearly specify practical components, which should be addressed in future revisions. Regarding thesis supervision, students can propose their own topics, with supervisors being assigned based on expertise matching, though group thesis work is not permitted as each student must conduct individual research.

Re-sit exams are provided to students who are unable to attend for acceptable reasons, such as illness with a doctor's note, participation in approved curricular or extracurricular activities, or other special circumstances. For practical courses, students who cannot attend sessions for valid reasons may conduct the practical at a later time. For students with disabilities, examinations are conducted in accordance with the principles of fair accommodation as outlined in the Service Guide for Students with Disabilities in Higher Education issued by the Ministry of Education, Culture, Research, and Technology in 2017. Alternative assessment methods are tailored to the individual needs and conditions of each student.

The programmes provide a re-sit exam mechanism for students who obtain marks below the passing standard (C) but are still eligible for improvement. Remedial examinations are conducted after the final semester examinations with equivalent material, so the students have the opportunity to improve grades without having to wait for the next semester. If students fail a course despite taking the remedial exam, or do not meet the requirements to take it, they are required to repeat the course in the following semester.

Information regarding the examinations is communicated by the lecturer at the beginning of the semester through the “Course Contract”. This contract contains information about course requirements (prerequisites), learning objectives, teaching methods, a brief description of the course, course assignments, references, assessment process, and graduation standards. Midterm and final examinations are conducted periodically based on the Academic Calendar of UNY. This schedule is announced prior to the exams to allow students sufficient time to prepare and is available via each degree programme’s website. The final grades for each student can be accessed via SIAKAD by logging in using each student's account.

Students who are not satisfied with their grades can submit a complaint to the lecturer by bringing supporting evidence. The lecturer checks the documents and decides whether changes in grades need to be made. Lecturers can change grades directly through SIAKAD as well as submit minutes of grade complaints to the head of study program, which is copied to the dean. Applications for grade complaints can also be submitted through the programme coordinators, which will then be reviewed and reviewed for the need for reassessment.

Relevant rules for organizing and conducting examination, assessment criteria, procedures in case of re-sits, disability compensation measures, proceedings in case of illness and other mitigating circumstances are transparently put into legal regulations. Students and lecturers confirm in discussions that both sides are aware of the regulations, and the experts have the impression that this system is operative with the aim to meet the requirements of the students as far as possible. In discussions, students describe the organization of examinations as transparent and responsive to their needs.

By studying the Self-Assessment Report and from discussions during the audit, the experts gain the impression that the methods used by the teaching staff at FIMPA for assessing learning outcomes are appropriate. The examination methods depend on the subject and the intended learning outcomes and range from mid-term and final examinations; laboratory works to subject-specific assignments and projects. The exams are usually written exams (e.g. quizzes, essay questions, calculation problems, or multiple-choice questions). There are only a few oral exams, for example for presenting the final project. As part of the

on-site visit, the experts also inspect exemplary examinations as well as Bachelor's and Master's theses. Overall, they are satisfied with the quality of the examinations and theses.

The students consider the grading system to be fair and transparent, with clear communication from lecturers about workload and grading components, and students have channels to appeal grades if needed. This positive view is shared by the experts.

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

UNY does not comment on this criterion in its statement.

The experts consider criterion 2 to be fulfilled.

3. Resources

Criterion 3.1 Staff and Development
--

Evidence:

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

Preliminary assessment and analysis of the experts:

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

The experts discuss with the Vice Rectors the human resources and financial structure of the university. They learn that currently 52% of the academic staff members hold PhDs, 43% are pursuing a PhD, and only 60 out of 1,500 lecturers do not want to pursue a PhD, with some being too old or sick to do so.

The majority of BB, BBE, BC and BCE teaching staff hold PhD degrees, with several currently pursuing doctoral studies, while all MBE and MCE teaching staff hold doctoral degrees. At both the study programme and faculty levels, efforts to enhance staff qualifications include mentoring and supervision by senior academics.

The detailed numbers for all six study programmes are depicted in the following tables:

Qualification	BB	BBE	MBE	BC	BCE	MCE
Doctor	10	17	15	18	10	14
On-going Doctor	4	4	0	3	7	0
Master	3	5	0	6	5	0
Total	17	26	15	27	22	14

Table 9: Academic Qualification Teaching Staff, Source: SAR UNY

Qualification	BB	BBE	MBE	BC	BCE	MCE
Professor	1	3	3	11	6	10
Associate Professor	7	6	7	8	6	2
Assistant Professor	4	12	5	6	9	2
Instructor	5	5	0	2	1	0
Total	17	26	15	27	22	14

Table 10: Academic Position Teaching Staff, Source: SAR UNY

Year	BB	BBE	MBE	BC	BCE	MCE
2021/2022	1:16	1:12	1:6	1:13	1:15	1:6
2022/2023	1:17	1:13	1:7	1:13	1:15	1:6
2023/2024	1:17	1:13	1:7	1:14	1:14	1:5

Table 11: Teacher to Students Ratio, Source: SAR UNY

As shown in Table 11 and in line with the provisions of the Higher Education Law No. 12/2012 and Government Regulation No. 4/2014, the lecturer–student ratios in the BB, BBE, MBE, BC, BCE, and MCE study programmes comply with the nationally recommended maximum of 1:20 and can thus be considered as sufficient. This ratio is maintained through

systematic staffing allocation that accounts for student enrolment trends. Academic delivery and programme operations are further supported by administrative personnel, technicians, and laboratory staff operating at the study programme, faculty, and university levels

In addition to the permanent academic staff members, visiting professors from international or Indonesian universities are regularly invited based on their academic qualifications, industry experience, and ability to contribute to programme's outcomes. The purpose of inviting visiting lecturers is to increase insight and knowledge, expand networks, provide practical perspectives, motivate and inform, and refresh learning through presentations by relevant experts and practitioners in their fields.

Details of the academic qualifications of the teachers are described in the staff handbook, which is accessible via the programme's webpage. All fulltime members of the teaching staff are obliged to be involved in (1) teaching/advising, (2) research, and (3) community service. However, the workload can be distributed differently between the three areas from teacher to teacher. In addition, there are non-academic staff members consisting of librarians, technicians and administrative staff.

The experts discuss with UNY's management how new staff members are recruited. They learn that recruitment at UNY begins with a needs analysis conducted at the study programme level, taking into account lecturer–student ratios, specific expertise requirements, and anticipated retirements. The proposal is submitted through the department and faculty leadership, then forwarded by the Dean to the Rector via the Vice Rector for General Affairs and Human Resources. New lecturers are recruited via national civil service and university-specific processes, involving open calls, academic qualifications, teaching demonstrations, and interviews.

Vacancies are announced through both national and university online portals. The selection process comprises administrative screening to verify compliance with general and specific qualification requirements, followed by a Basic Competency Test (SKD) assessing civic knowledge, general intelligence, personal characteristics, and English proficiency, and a Field Competency Test (SKB) involving subject-specific examinations, teaching demonstrations, and interviews. Lecturer recruitment at UNY is coordinated by the Administration and Personnel Bureau.

During the audit, the experts inquire how high the teaching load is and if enough opportunities are offered to the academic staff members to conduct research activities. They learn that teachers at FMIPA have a workload of 12 to 16 credits: with a minimum of 9 credits allocated to teaching and research. The national maximum workload is 16 credits. One credit is equivalent to 170 minutes of work per week with about one hour contact time. How much time staff members actually devote to research varies from teacher to teacher,

because working hours are spent flexibly for teaching, research, and community service. There is no strict minimum requirement for community service and supporting activities, except that they must not be completely absent. For lecturers holding administrative roles, the teaching load may be reduced to a minimum of three credits.

In summary, the experts confirm that the composition, scientific orientation and qualification of the teaching staff – beside the already mentioned points – are suitable for successfully implementing and sustaining the degree programme.

Staff Development

UNY encourages training of its academic and technical staff for improving the educational abilities and teaching methods. The academic and didactic development of teaching staff is coordinated by the faculty-level academic units in cooperation with the university's Center for Higher Education Quality Development (PPMPT).

The scope of the training includes writing and conducting research and publications, as well as training related to student activities at the local, national and international levels. The coordinator of each programme arranges the dispatch of lecturers for professional training and certification.

Needs for professional development are identified via annual performance evaluations, feedback from students (through course evaluations), and expert assessments. This input guides the planning of capacity-building programmes tailored to both content mastery and didactic innovations.

Lecturers who have held academic positions for more than two years are required to participate in the lecturer certification programme, which assesses English proficiency, scholastic aptitude, and professional competence. These assessments are conducted by certified assessors from other universities. Certification, along with promotion and academic rank advancement, serves both as formal recognition and as a pathway for professional development, enabling lecturers to expand opportunities for research and teaching grants.

Furthermore, staff members are required to obtain the PEKERTI (Program Peningkatan Keterampilan Dasar Instruksional) certificate or the Applied Approach certificate. This is a compulsory training for all staff members that focuses on advancing pedagogical knowledge. It is designed particularly for junior faculty members to introduce various teaching methods, learning strategies, preparation of assessments, class management, as well as syllabus and course content development. All teachers at UNY are obligated to attend the lecturer certification programme held by the Directorate General of Higher Education (Direktorat Jen-

deral Pendidikan Tinggi Ditjen, DIKTI). An official teaching certificate is issued after the faculty member has completed the certification process. In addition, the study programmes organise trainings to upgrade lecturers' pedagogical content knowledge on a regular basis.

Young staff members with a Master's degree are encouraged to pursue doctoral studies (usually abroad). To support this policy, UNY provides foreign language training and organises seminars presenting scholarships from various sources.

With respect to professional development, UNY has established clear promotion criteria requiring lecturers to achieve over 45% of the required points from research and publications, with different requirements for different ranks including high-impact publications for the position of full professor.

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

Student Support

UNY offers a comprehensive advisory system for all undergraduate students. At the start of the first semester, every student is assigned to an academic advisor. Each academic advisor is a member of the academic staff and is responsible for approximately 20 students from her/his classes. He/she is the student's first port of call for advice or support on academic or personal matters.

The role of the academic advisor is to help the students with the process of orientation during the first semesters, the introduction to academic life and the university's community, and to respond promptly to any questions. They also offer general academic advice, make suggestions regarding relevant careers and skills development and help if there are problems with other teachers. During the semester, counselling activities are usually offered three times, namely at the beginning of the semester (before the courses start), mid-semester, and at the end of the semester. The students confirm during the discussion with the experts that they all have an academic advisor, whom they can approach if guidance is needed.

In general, students stress that the teachers are open-minded, communicate well with them, take their opinions and suggestions into account, and changes are implemented if necessary.

The students who prepare their final project usually have two supervisors, who are selected based on the topic of the final project. One supervisor could be an external supervisor, if the student performs the final project outside UNY. The thesis supervisor is responsible for

providing advice and guidance to students in determining research topics, writing proposals, supervising the implementation of research, writing reports, and assisting students in presenting their research results.

During the audit, the experts address regulations for students with special needs, noting that while no specific regulations exist at programme level, the UNY's Disability Center provides support and detailed information for students with special needs. The experts are satisfied with this solution.

All students at UNY have access to the digital academic information system SIAKAD. The students' profiles (student history, study plan, academic transcript and grade point average/GPA, lecturer evaluation, course list) are available via Satu UNY. In addition, course materials and supporting documents compiled by the lecturers are provided via SIAKAD.

Students are also encouraged to participate in student associations to develop soft skills such as leadership, teamwork, and communication. Furthermore, FIMPA hosts several research groups, offering opportunities for students to engage in collaborative research for their final projects.

To facilitate student achievements, UNY offers the following initiatives:

1. Undergraduate Student Orientation Programme – conducted at the start of studies to provide comprehensive information on curricula, teaching staff, research groups, facilities, and equipment.
2. ICT Competency Development – training on the ethical and effective use of information and communication technologies, including social media ethics.
3. Soft Skills Development – programs aimed at improving communication skills, integrity, teamwork, interpersonal competence, and work ethics.
4. Academic Advising – ongoing guidance on course selection, elective specializations, and academic problem-solving.
5. Socialization of the MBKM Programme – information sessions on government-supported programs, such as those offered by the National Research and Innovation Agency (BRIN).
6. Career Development Services – provided at the university level, including career fairs connecting employers with students and pre-employment training to prepare graduates for the job market.

Finally, there are several Students Associations at UNY, their tasks include organizing academic and professional development activities for students, such as competitions, seminars, and study events that deepen understanding of the respective science and support

learning beyond regular coursework. In addition, they facilitate student engagement and community outreach, including social programmes that build leadership, teamwork, and public engagement skills, as well as activities that introduce science in accessible ways to the wider community. Moreover, they include student's activity clubs, which are divided into arts, sports, religious and other non-curricular activities.

The experts 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.

Criterion 3.2 Funds and equipment
--

Evidence:

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

Preliminary assessment and analysis of the experts:

Basic funding of the undergraduate programmes and the facilities is provided by UNY and FMIPA. The financial sources are government funding for salaries and infrastructure, tuition fees from students, collaborations, donations, grants, and income from UNY's business units. According to the information provided during the audit, 30 % of the university's budget is derived from the Indonesian government, 50 % from tuition fees, and around 20% by cooperations, donations, and business units (e.g. sports facilities, hotel, convention hall). Additional funds for research activities can be provided by UNY or the Indonesian government (Bantuan Pendanaan Perguruan Tinggi Nasional, BPPTN), but the teachers have to apply for them.

UNY partners with industry for research support, training activities, and facility rentals, including resources like culinary programmes. Additionally, UNY receives funding from cooperations with international partners like the British Council and Japan International Cooperation Agency (JICA). UNY allocates around 15% of its budget on research activities. The university representatives explain their research and publication tracking systems, including a €10 million annual budget for publication incentives and a national database system that tracks lecturer publications

Until 2022, UNY operated as a semi-autonomous university, because the university had limited financial and managerial flexibility while remaining tightly integrated with the central Indonesian government. Since 20 October 2022, UNY has officially become a PTN BH under Government Regulation (PP) No. 35 of 2022, signed by the President of Indonesia. This regulation grants UNY full institutional autonomy in academic, financial, human resource, and asset management matters.

The annual budget of FMIPA and the departments is determined at university level. Every year, UNY's management will ask the faculties to prepare an activity plan and a budget for the next period. The activity and budget planning are presented and discussed during the management meetings at faculty level and subsequently forwarded to UNY's management.

The experts confirm that the provided budget allows the departments to conduct the study programmes as well as some specific activities, including student exchange programmes, student financial assistance for research, and participation in international conferences. The academic staff members emphasise that from their point of view, the programmes under review receive sufficient funding for teaching and learning activities.

The implementation of the six study programmes under review is supported by facilities, which include offices, lecture rooms, as well as laboratories, library, computer and internet rooms facilities, and administration and supporting facilities.

The experts ask the teaching staff about the quality of facilities, safety measures and laboratory equipment, which includes repair processes for broken devices. They learn that instrument repairs are handled through collaboration with distributors, with repair times typically taking about two weeks for standard instruments. For expensive equipment, the university follows a structured budget approach where smaller repairs are handled at the department level, medium-sized repairs are covered by faculty maintenance budgets, and major repairs require university-level approval. Regarding safety protocols, the teaching staff acknowledges gaps in implementation and explains that while standard operating procedures exist for health and safety, enforcement varies. There is a health centre on campus, with students having national health insurance coverage. Moreover, UNY conducts regular safety audits twice a year with external collaboration for dangerous substances management.

The Biology Laboratory Building consists of three floors and houses the following laboratories:

1. Basic Biology Laboratory – used for foundational biology practicums for undergraduate students.

2. Microbiology Laboratory – focuses on microorganism research and practicum, equipped with biosafety cabinets, autoclaves, and incubators.
3. Plant Tissue Culture Laboratory – supports in vitro plant propagation and plant biotechnology studies.
4. Genetics Laboratory – consists of multiple rooms for genetics research and experimentation.
5. Zoology Laboratory – houses animal specimens, anatomical models, and equipment for animal biology studies.
6. Botany / Plant Biology Laboratory – supports studies of plant structure, physiology, and taxonomy.
7. Microscopy Laboratory – dedicated to microscopic observation using optical and advanced microscopes.
8. Biodiversity Laboratory – focuses on biodiversity studies and specimen-based learning.
9. Environmental Biology Laboratory – supports ecosystem analysis, environmental monitoring, and conservation studies.
10. Soil Biology Laboratory – specializes in soil microorganisms and biological soil analysis.
11. Research Laboratory – used by students and lecturers for independent and collaborative biology research.
12. Computer Laboratory – equipped with networked computers for data analysis, modeling, and bioinformatics.

In addition to the laboratories, the Department of Biology also manages experimental gardens, greenhouses, experimental animal management units, experimental ponds, and organic waste treatment units.

The Department of Chemistry operates its laboratories mainly within a three-storey Laboratory Building ($\approx 2,100 \text{ m}^2$). The laboratories include:

1. Basic Chemistry Laboratory - used for introductory chemistry practicums such as stoichiometry, solutions, acids–bases, and basic reactions. It supports early-stage laboratory skills and school level chemistry experiments.

2. Organic and Biochemistry Laboratory - facilitates organic synthesis, functional group analysis, and biochemical experiments relevant to senior high school chemistry and teacher training.
3. Analytical Chemistry Laboratory - supports qualitative and quantitative analysis, titrations, spectroscopy based analysis, and sample testing, emphasizing laboratory pedagogy and assessment skills.
4. Physical and Inorganic Chemistry Laboratory - used for thermodynamics, kinetics, electrochemistry, coordination compounds, and materials related experiments relevant to school chemistry curricula.
5. Instrumentation Laboratory - houses advanced analytical instruments used for demonstrations, student research, and teacher training.
6. Computer Laboratory - equipped with networked computers for data analysis, computational chemistry, digital learning media development, and computer assisted learning.

Additionally, FMIPA has at least two micro-teaching labs consisting of a main room, operator room, and observation room, with multiple CCTV cameras used for recording mock-teaching sessions.

Finally, there is the Integrated Science Laboratory at FMIPA, which is a shared, interdisciplinary laboratory facility designed to support integrated science teaching, practicum, research, and public academic services across multiple science disciplines. It is a centralised laboratory unit that brings together chemistry, biology, physics, and earth/environmental science resources under one roof and equipped for advanced analysis and interdisciplinary research and provides laboratory services for students, lecturers, researchers, schools, and the community. Available instruments include X Ray Diffraction (XRD), Atomic Absorption Spectroscopy (AAS), UV Vis / NIR Spectrophotometers, and Particle Size Analyzer (PSA).

During the audit, the expert group also visits the laboratories in the Faculty of Sciences and Mathematics to assess the quality of the facilities and the technical equipment. They notice that there are no severe bottlenecks due to missing equipment and confirm that the laboratories are equipped with the necessary equipment. The chemistry laboratories are well equipped with analytical instruments. It is encouraging that the equipment is integrated into the practical sessions and that students operate it under supervision. The existing biotechnology laboratory facilities provide a good basis for teaching. Fermentation equipment should be purchased. Standard operating procedures (SOPs) for the equipment and work processes are in place in the biotechnology labs. In general, there appear to be sufficient teaching and laboratory staff to oversee the laboratory courses and the infrastructure. The

office areas are separated from the laboratory area by a glass wall, allowing for simultaneous supervision of laboratory operations.

During the campus tour, the experts notice that while the laboratory equipment is modern and sufficient in numbers, there are issues with safety compliance, including a lack of emergency showers in each lab and as well as improper storage of chemicals. The experts confirm that designated assembly points for emergencies are established, equipment for the evacuation of injured persons is provided and emergency response officers are identified. However, it must be ensured and documented that staff and students receive safety training before starting laboratory work at least once a year. Emergency showers are located on every floor of the laboratory building, though they are situated outdoors, outside the laboratories. Some laboratories do not have safety showers despite the use of open flames and hazardous materials during experiments, making the installation of safety showers necessary to ensure adequate laboratory safety. Regular occupational safety and hazard assessments should be conducted, as current observations suggest that these practices are not systematically implemented.

Eye wash stations have been installed in the chemistry laboratories. The emergency showers and eye wash stations should be regularly inspected and flushed, and the successful inspection must be documented. The route to the nearest emergency and eye shower should be clearly signposted. In cases where eye wash units cannot be installed, alternative solutions must be provided. Where gas cylinders are used temporarily in the laboratory, they must be secured to prevent them from falling over. The potential hazards must be highlighted at the laboratory entrance (using appropriate stickers or similar). For long-term use, a gas cylinder cabinet should be installed instead.

At the start of their studies, students are issued with a lab coat for personal use. All staff and students encountered in the laboratories were wearing their lab coats and sturdy footwear. Safety goggles are also provided for both students and staff. However, these were either not used at all or were not worn correctly at all times (pushed up instead of covering the eyes). The necessity of always wearing safety goggles in the chemistry laboratories must be emphasised during every safety briefing. In the event of non-compliance, the necessity of eye protection must be highlighted. Teaching staff must always set an example in this regard. Appropriate signs indicating the mandatory use of safety goggles must be displayed at the entrance to the relevant laboratories.

The proper and safe storage of chemicals is not adequately addressed. Fume hoods are available in several laboratories. Unfortunately, however, these are not used for handling of chemicals, but rather, if at all, for the long-term storage of chemicals (acids and bases, organic solvents). The cupboards below the hoods are also used for this purpose, but they

are not connected to the ventilation system. Chemical storage cabinets with continuous ventilation are not available and must be purchased. The fume hoods should be cleared as far as possible. Organic solvents and chemicals with a hazard potential must be handled under the fume hoods. Staff and students must be trained in working under the fume hood. In particular, halogenated solvents should, where possible, be substituted and must under no circumstances be handled without ventilation. Currently, organic solvents are stored and used in the laboratory rooms at temperatures of around 30 °C without air exchange. Chemical bottles and sample vials must be labelled in accordance with their hazard potential. All waste containers must also be labelled. In some laboratories this is done correctly, in others it is not. Carcinogenic and toxic substances should be avoided as far as possible in teaching. Examples include Cr (VI) compounds and Hg compounds, which should be removed from lab courses. Toxic compounds must be kept under lock and key. The handling of carcinogenic substances by students and staff must be documented. It was also noted that laboratory staff have participated in external training and certification related to safety procedures.

Regarding the general biology laboratories, the experts notice that not all laboratory rooms are equipped with individual waste tanks; however, centralised waste facilities are available on each floor. The university has an established waste management system handled at the institutional level. Safety guidelines and procedures are clearly displayed in each laboratory. Although some laboratory rooms are relatively limited in size, the programme manages this effectively by organising students into smaller groups and multiple sessions.

The experts stress that there are many hazardous substances and instruments used in the laboratories, which causes a significant risk of accidents and presents a danger to human health, and the natural environment. This demands care in order to protect human health, conserve the natural environment and to prevent laboratory accidents. As a consequence, UNY needs to comprehensively review existing safety measures and invest in improved safety equipment in accordance with established safety regulations.

For the biology programmes, there are two types of laboratories: general biology laboratories used for basic practical sessions, and integrated laboratories equipped with more advanced instruments. The overall condition of the integrated laboratories is largely positive. However, it was noted that some advanced equipment in the integrated laboratories can only be operated by laboratory technicians. In such cases, students submit their samples, and the analysis is carried out by the technicians, mainly due to the high value and sensitivity of the equipment. In other laboratories with less complex equipment, students are able to operate the instruments directly.

Allowing broader student access to advanced equipment, where feasible, could further enhance their practical competencies, in alignment with the programme learning outcomes and expectations from the private sector.

In addition, the experts confirm that the microteaching laboratory is well-equipped and designed to simulate a classroom environment. It includes recording facilities that allow students to practise and review their teaching performance with technical support.

The students express their satisfaction with the library and the available literature there. Remote access via VPN is possible and UNY offers access to several scientific digital databases, so that teachers and students have sufficient access to current scientific papers, e-books, and papers.

In summary, the expert group judges the available funds, the technical equipment, and the infrastructure (laboratories, library, seminar rooms etc.) to comply – besides the mentioned restrictions concerning lab safety – with the requirements for adequately sustaining the degree programmes.

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

The experts thank UNY for addressing the serious issue of safety measures in the laboratories. They see that several improvements have been already implemented and others are currently ongoing. It is important that the departments have received approval for the procurement of additional laboratory safety equipment and storage facilities, including a flammable cabinet, strong acid and alkali storage cabinet, and reagent storage cabinet. The experts expect to receive verification of the instalment of the safety equipment in the further course of the procedure.

The experts consider criterion 3 to be mostly fulfilled.

4. Transparency and documentation

Criterion 4.1 Module descriptions
--

Evidence:

- Self-Assessment Report
- Module descriptions
- Homepage UNY: <https://www.uny.ac.id/>

- Homepage Faculty of Mathematics and Natural Sciences: <https://fmipa.uny.ac.id/>
- Homepage Ba Biology: <https://biologi.fmipa.uny.ac.id/id>
- Homepage Ba Biology Education: <https://pend-biologi.fmipa.uny.ac.id/id>
- Homepage Ma Biology Education: <https://s2pbio.fmipa.uny.ac.id/>
- Homepage Ba Chemistry: <https://kimia.fmipa.uny.ac.id/>
- Homepage Ba Chemistry Education: <https://pendidikankimia.fmipa.uny.ac.id/>
- Homepage Ma Chemistry Education: <https://s2pkim.fmipa.uny.ac.id/>
- Discussions during the audit

Preliminary assessment and analysis of the experts:

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

After studying the module descriptions of the six study programmes under review, the experts confirm that they include the information about the persons responsible for each module, the teaching methods, the awarded credits, the intended learning outcomes, the applicability, as well as the admission and examination requirements.

However, the experts point out that it is necessary to mention the students' total workload (including time needed for self-studies) in hours per semester in the module descriptions. In addition, the module descriptions need to make transparent what forms of assessment are used, the description of the taught content needs to be updated, and practical laboratory work needs to be detailed. In general, all module descriptions should be checked for consistency by the respective programme coordinators.

For this reason, the experts expect UNY to update the module descriptions for all six study programmes.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report
- Sample Diploma Certificate
- Sample Diploma Supplement
- Sample Transcript of Records

Preliminary assessment and analysis of the experts:

The experts confirm that students from all programmes under review receive a Degree Certificate and an Academic Transcript after graduation.

Along with these documents, the graduates receive a Diploma Supplement. It contains all necessary information about the respective degree programme, including learning outcomes, acquired soft skills and student achievement in academic, co-curricular, extracurricular, or non-formal education.

Criterion 4.3 Relevant rules

Evidence:

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

Preliminary assessment and analysis of the experts:

The experts confirm that the rights and duties of both UNY and the students are clearly defined and binding. All rules and regulations are published on the university's website, and the students receive the course material at the beginning of each semester.

In addition, all relevant information about the degree programme (e.g., module handbook, study plan, learning outcomes) is available on the English homepage of the programme.

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

The experts confirm that UNY has updated the module descriptions with respect to content, practical laboratory work, students' total workload, and exam forms. The module descriptions have also been checked for consistency by the respective programme coordinators. The experts are satisfied with the updated module descriptions.

The experts consider criterion 4 to be fulfilled.

5. Quality management: quality assessment and development

Evidence:

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

Preliminary assessment and analysis of the experts:

The experts discuss the quality management system at UNY with the representatives of the Rector's Office and the programme coordinators. The experts learn that there is an institutional system of quality management aiming at continuously improving the degree programme.

This system relies on internal (SPMI) as well as external (SPME) quality assurance. SPMI encompasses all activities focused on implementing measures for improving the teaching and learning quality at UNY. SPME focuses on both national and international accreditations.

Every degree programme and every Higher Education Institution in Indonesia has to be accredited by the National Accreditation Board of Higher Education / Badan Akreditasi Nasional Perguruan Tinggi (BAN-PT) or by one of the Indonesian Independent Accreditation Agencies (LAMSAMA). External audit takes place every five years through accreditation activities organized by Independent Accreditation Institute for Natural Sciences and Formal Sciences (LAMSAMA) for Bachelor of Chemistry (BC) and Bachelor of Biology (BB); and Independent Education Accreditation Institute (LAMDIK) for Bachelor of Chemistry Education (BCE), Master of Chemistry Education (MCE) Bachelor of Biology Education (BBE), and Master of Biology Education (MBE).

At the core of the quality assurance system is the Directorate of Quality Assurance, which has two supporting centers for SPMI implementation: (1) the Center for Higher Education Quality Development (PPMPT), tasked with overseeing the implementation of higher education quality development activities related to the tridharma, including the development of internal quality assurance systems and facilitating the implementation of external quality assurance systems (both national and international), and (2) the Center for Education Audit, Monitoring, and Evaluation (PAMEPT), which focuses on conducting audits, evaluations, and monitoring educational activities. Together they oversee a comprehensive process of collecting, analysing, and reporting data related to educational and non-educational

staff, programmes, and institutional performance. The aim is to identify areas of achievement and prioritize improvement initiatives. This process serves as the evidence base for decision-making and strategic planning within the university. The ultimate goal of the quality assurance process is to foster a culture of sustainable quality improvement and to ensure that UNY's services meet the expectations of its stakeholders—students, alumni, employers, and broader society—by producing competent, ethical, and skilled graduates.

UNY's quality assurance framework also includes Faculty Quality Assurance Units (UPM), such as that within FMIPA, that align local academic processes and programme-level monitoring with university-wide standards. At the department or study programme level, the Quality assurance Team (GPM) carries out the QA-procedures. The GPM's tasks include: (1) planning, coordinating, and evaluating the implementation of SPMI within study programs, (2) regularly reporting the SPMI implementation to the Study Program Coordinator, and (3) coordinating with UPM to fulfil its tasks and functions. These units contribute to the continuous improvement of curricula, teaching, and student assessment through regular audits, tracer studies, and feedback mechanisms like workload and competency evaluations.

Beyond internal mechanisms, UNY participates in external quality assurance and accreditation to ensure its programs meet international standards. For instance, several of UNY's programmes have received accreditation by international agencies. The accreditation requires UNY to implement a systematic control loop that connects student workload analysis with the evaluation of results and subsequent improvements, demonstrating a commitment to data-driven educational enhancement

Internally, quality of the teaching and learning processes is monitored and evaluated through the Internal Quality Audits (AMI). The AMI is conducted annually in accordance with UNY's official procedures. AMI are aimed at ensuring that the implementation and management of the study programmes are in line with the university's vision and mission and the programme objectives. During the AMI, every study programme will analyse data on the implementation of educational and research activities, which are documented in the form of reports, monitoring data, and evaluation results. Furthermore, based on the AMI results, the faculty conducted workshops for all study programmes in order to discuss and implement the required measures for improving the study programme. At the faculty level, results are further reviewed in Management Review Meetings (RTM) attended by deans, vice deans, and heads of study programmes.

Quality assurance at the faculty level includes (1) carrying out internal monitoring and evaluation of all study programmes and periodic evaluation of academic staff performance; (2) coordinating the implementation of lecture evaluations based on student perceptions conducted every semester; (3) updating the accreditation data of study programmes at the

faculty level; (4) submitting the results of internal monitoring and evaluation of study programmes and staff members to the Dean and the Head of UPM.

Internal assessment of the quality of the degree programme is mainly provided through student, alumni, and employer surveys. The students give their feedback on the courses by filling out the questionnaire online at the end of each semester. Students assess various aspects such as students' understanding, lecturer's responsiveness, course delivery, lecturer's proficiency, explanation of course objective, and references in each enrolled course.

Giving feedback on the classes is compulsory for the students; otherwise, they cannot access their account on the digital platform SIAKAD. The experts point out that there should be a regular and institutionalised survey on students' workload in every course. For example, this could be done by including a respective question in the course questionnaires that students have to fill out at the end of each semester (see Criterion 1.5).

Moreover, UNY regularly conducts alumni tracer studies and has an alumni association. By taking part at this survey, alumni can comment on their educational experiences at UNY, the waiting period for employment after graduation, their professional career and can give suggestions how to improve the programme. Furthermore, there is the Unit for Career Development and Entrepreneurship at UNY, which offers help to find suitable internships, announces job vacancies, and offers courses to develop soft skills. UNY regularly organises a job fair; in general, the graduates' job perspectives are good. In addition, the contacts students make during the internships sometimes lead to job offers. UNY tracks graduate employability through tracer studies conducted by the Career Center and reports the findings to the Senate and Indonesian government. The experts point out that UNY should share the results of the tracer studies with the participating stakeholders (e.g. send them the link where the yearly reports are published)

In addition to surveys, students are also represented in decision-making forums at the program and faculty level, ensuring that their voices are formally considered in the formulation of policies and follow-up actions.

During the audit, the experts learn that students are not official members of the boards at programme level, but they can make suggestions to the Dean or the Head of Study Programme. Based on the meeting with the Programme Coordinators and the Representative from the Rector's Office, it is apparent that students convey their critiques and suggestions through their representatives. Students are formally involved in the academic decision-making process through active participation in Academic Senate meetings and a students' representative is a member of the Board of Trustees. This involvement aims to foster students' understanding of university governance structures, promote democratic engagement, and strengthen their role in maintaining and improving academic quality.

The experts gain the impression that the departments take the students' feedback seriously and changes are made if necessary. In case of negative feedback, the Head of Department talks to the respective teacher, analyses the problem, and offers guidance. There are regular meetings with students where they can voice their issues and suggestions.

The experts discuss during the audit if there are regular meetings with the partners on faculty or department level, where they discuss the needs and requirements of the employers and possible changes to the degree programme. They learn that employers and alumni are regularly invited to give their feedback on the content of the degree programmes. The experts appreciate that UNY stays in contact with its alumni and has a close relation with its partners.

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

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

UNY does not comment on this criterion in its statement.

The experts consider criterion 5 to be fulfilled.

D Additional Documents

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

- Explanation if students with colour-blindness can be admitted to the study programmes or not.

UNY explain it its statement: “The university does not impose a colour blindness restriction policy for admission to these study programmes. Information regarding admission requirements, including the absence of mandatory colour blindness screening is publicly available on the university admissions website.”

E Comment of the Higher Education Institution (15.05.2026)

UNY provides the following statement:

Results of the Site Visit Assessment

Students' academic mobility is rather low. Especially Master's students should be encouraged to spend some time abroad during their studies.

Study Programmes' Response

University policy strongly supports student mobility as part of the UNY strategic plan. This commitment is reinforced through institutional support schemes, including equity programs and various international collaborations. Several mobility initiatives have already been implemented across the study programmes as important initial efforts to strengthen international exposure and academic collaboration. At the Bachelor's level, students have participated in various international mobility programmes and academic activities.

1. In the Bachelor of Chemistry Education programme, 14 students participated in international mobility activities during the last five years, including the LUMA Centre Finland credit transfer programme (10 participants).
2. In the Bachelor of Chemistry programme, student mobility involved participation in Indonesian International Student Mobility Awards (IISMA) with overseas study opportunities (2 participants), international summer programmes (2 participants).
3. In the Bachelor of Biology Education programme recorded participation in international teaching practice programmes abroad (3 participants).
4. In the Bachelor of Biology programme, students also participated in IISMA (2 participants), and hosted 3 credit transfer students from Thailand which provided opportunities for international academic exposure and intercultural learning experiences.

We also have an established strategic collaboration involving Universiti Pendidikan Sultan Idris (UPSI), Malaysia, particularly in Chemistry Education study programmes both in bachelor and master level. The collaboration involves Bachelor of Chemistry Education's Credit Transfer programme and the curriculum alignment process for Master of Chemistry Education double degree programme.

We, therefore, acknowledge the experts' observation that students' academic mobility remains relatively limited, especially at the Master's level. However, at the Master's level, several efforts have been initiated to increase student mobility.

1. In the Master of Chemistry Education programme has participated in several international academic mobility activities. Two students participated in The 10th International Conference on Knowledge Engineering and Application at Kyushu University, Japan. In addition, one student participated in 8th International Conference on Multi-Disciplinary Research Studies and Education in Kuala Lumpur, Malaysia, organized by Manipal GlobalNext University, Multimedia University (MMU), SEGi University & Colleges, and IFERP Academy. The conference provided opportunities for scholarly exchange, interdisciplinary collaboration, and international academic networking.

2. In the Master of Biology Education programme conducted student mobility through the Universiti Putra Malaysia (UPM) Virtual Inbound Mobility Program with one participant. These activities represent important initial efforts to strengthen postgraduate international exposure and academic collaboration.

To further enhance student mobility, particularly for Master's students, the study programmes plan to:

1. increase the promotion and facilitation of international exchange programmes for postgraduate students;
2. develop more structured mobility pathways and double degree schemes;
3. strengthen partnerships with international universities and research institutions;
4. provide stronger academic recognition and credit transfer support for studies conducted abroad;
5. expand participation in international conferences, research collaborations, and short academic exchanges; and
6. continue curriculum alignment with UPSI Malaysia to support future student exchange and double degree implementation.

Results of the Site Visit Assessment

It would be useful to offer an international class also in the other study programmes.

Study Programmes' Response

We agree with the experts' recommendation. Currently, an International Undergraduate Program (IUP) has been successfully established in the Bachelor of Chemistry Education programme as a pilot initiative for internationalization.

The university is planning to gradually expand international classes to other study programmes, considering:

1. Readiness of human resources,
2. Curriculum alignment,
3. Availability of international partners.

Results of the Site Visit Assessment

The awarded ECTS points need to comply with the students' total workload, which needs to be verified for each course.

Study Programmes' Response

The study programme fully agrees with this recommendation. In fact, UNY already has a syllabus system that calculates student workload for each course. Student workload is verified through learning monitoring and evaluation (M&E) conducted at the end of each semester. The M&E system lists questions, particularly those regarding study workload.

In addition, UNY has established an institutional credit conversion system based on student workload in accordance with national academic regulations and ECTS principles. The calculation of student workload is defined according to the type of learning activities.

For theoretical courses, 1 SKS consists of 50 minutes of scheduled learning activities, 60 minutes of structured learning assignments, and 60 minutes of independent or supervised learning activities. For practicum, laboratory, or field practice courses, 1 SKS consists of 100 minutes of structured practical activities and 70 minutes of guided learning activities. In addition, independent learning activities are also recognized through student-centered academic activities such as literature study, surveys, colloquia, tutorials, discussions, consultations, seminars, conferences, and data analysis activities.

We verified the current use of a fixed conversion factor between credits (SKS) and ECTS.

Our verification include:

1. 1. Recalculation of ECTS based on actual student workload per course,
2. 2. Alignment with the ECTS Users' Guide,

3. 3. Validation through student workload surveys,
4. 4. Ensuring transparency and updating the module descriptions in the annexes.

Results of the Site Visit Assessment

The module descriptions need to be updated with respect to the content, practical laboratory work, students' total workload, and exam forms. Module descriptions should be checked for consistency by the respective programme coordinators.

Study Programmes' Response

Following the recommendations, we updated the content, practical laboratory work, students' total workload, and exam forms in the module descriptions. The module descriptions have also been checked for consistency by the respective programme coordinators.

Results of the Site Visit Assessment

Safety regulations and measures have to be strictly followed in all laboratories (e.g. safety cabinets for the chemicals, personal protection wear). There should be regular safety audits of the laboratories.

Study Programmes' Response

The study programme fully acknowledges the importance of strict laboratory safety compliance. Laboratory safety audits have already been implemented at the faculty level through the Dean's Decree, including follow-up recommendations and continuous monitoring activities.

To strengthen laboratory safety measures, several improvements have been implemented and are currently ongoing. Personal Protective Equipment (PPE) is mandatory for all students and laboratory users, and students are not permitted to enter laboratories without proper PPE. In addition, laboratory safety guidelines have been displayed at the entrance of each laboratory to increase safety awareness and ensure compliance with laboratory regulations. Laboratory facilities have also been improved through regular maintenance and cleaning of laboratory equipment, including fume hoods, to ensure safe operation and proper ventilation.

Furthermore, the department has proposed and received approval for the procurement of additional laboratory safety equipment and storage facilities, including a flammable cabi-

net, strong acid and alkali storage cabinet, and reagent storage cabinet. These improvements are intended to enhance chemical storage safety and strengthen compliance with laboratory safety standards.

Further improvements include:

1. strengthening enforcement of laboratory safety protocols;
2. conducting regular laboratory safety audits;
3. enhancing safety training for students and staff; and
4. ensuring the proper use and monitoring of PPE in all laboratory activities.

Colour blind student policy

Study Programmes' Response

The university does not impose a colour blindness restriction policy for admission to these study programmes. Information regarding admission requirements, including the absence of mandatory colour blindness screening is publicly available on the university admissions website.

F Summary: Expert recommendations (27.05.2026)

Taking into account the additional information and the comments given by UNY, the experts 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	-	30.09.2033
Ba Biology Education	With requirements for one year	-	30.09.2033
Ma Biology Education	With requirements for one year	-	30.09.2031
Ba Chemistry	With requirements for one year	-	30.09.2033
Ba Chemistry Education	With requirements for one year	-	30.09.2033
Ma Chemistry Education	With requirements for one year	-	30.09.2033

Requirements

For all degree programmes

- A 1. (ASIIN 1.5) Verify the students' total workload and award the ECTS points accordingly.
- A 2. (ASIIN 3.2) Strictly follow international standards on safety regulations in all laboratories. Regularly conduct safety audits of the laboratories.

Recommendations

For all degree programmes

- E 1. (ASIIN 1.3) It is recommended to increase students' academic mobility and to encourage students to spend some time abroad during their studies.

For all degree programmes but Ba Chemistry Education

- E 2. (ASIIN 1.3) It is recommended to offer an international class.

G Comment of the Technical Committees (09.06.2026)

Technical Committee 09 – Chemistry, Pharmacy (09.06.2026)

Assessment and analysis for the award of the ASIIN seal:

The procedure took place in March 2026 in a hybrid format. Not all German experts were able to travel, as their flights via Qatar had been cancelled due to the war between Iran and USA. With one exception (Ma Biology Education), the degree programmes under review are undergoing re-accreditation. Overall, the university made a strong impression on the experts, and only two requirements and two recommendations have been proposed. The requirements relate to safety standards in the laboratories and the verification of the students' workload. The two recommendations concern academic mobility and the introduction of an International Class in all programmes, which will be taught in English. The only exception is the Bachelor's programme in Chemistry Education where such an international class already exists. Following a brief discussion, the Technical Committee endorses the proposals.

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

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Chemistry	With requirements for one year	-	30.09.2033
Ba Chemistry Education	With requirements for one year	-	30.09.2033
Ma Chemistry Education	With requirements for one year	-	30.09.2033

Technical Committee 10 – Life Sciences (08.06.2026)

Assessment and analysis for the award of the ASIIN seal:

The procedure took place in March 2026 in a hybrid format. Not all German experts were able to travel, as their flights via Qatar had been cancelled due to the war between Iran and USA. With one exception (Ma Biology Education), the degree programmes under review are undergoing re-accreditation. Overall, the university made a strong impression on the experts, and only two requirements and two recommendations have been proposed. The requirements relate to safety standards in the laboratories and the verification of the students' workload. The two recommendations concern academic mobility and the introduction of an International Class in all programmes, which will be taught in English. The only exception is the Bachelor's programme in Chemistry Education where such an international class already exists. Following a brief discussion, the Technical Committee endorses the proposals.

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	-	30.09.2033
Ba Biology Education	With requirements for one year	-	30.09.2033
Ma Biology Education	With requirements for one year	-	30.09.2031

H Decision of the Accreditation Commission (26.06.2026)

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

The Accreditation Commission discusses the procedure and decides to accredit the study programmes with two requirements and three recommendations. They add a recommendation with respect to the age of the applicants for the Bachelor's programmes.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Biology	With requirements for one year	-	30.09.2033
Ba Biology Education	With requirements for one year	-	30.09.2033
Ma Biology Education	With requirements for one year	-	30.09.2031
Ba Chemistry	With requirements for one year	-	30.09.2033
Ba Chemistry Education	With requirements for one year	-	30.09.2033
Ma Chemistry Education	With requirements for one year	-	30.09.2033

Requirements

For all degree programmes

- A 1. (ASIIN 1.5) Verify the students' total workload and award the ECTS points accordingly.
- A 2. (ASIIN 3.2) Strictly follow international standards on safety regulations in all laboratories. Regularly conduct safety audits of the laboratories.

Recommendations

For all degree programmes

- E 1. (ASIIN 1.3) It is recommended to increase students' academic mobility and to

encourage students to spend some time abroad during their studies.

- E 2. (ASIIN 1.4) It is recommended to open the admission process to applicants of all ages, regardless of the date of their high school diploma.

For all degree programmes but Ba Chemistry Education

- E 3. (ASIIN 1.3) It is recommended to offer an international class.

Appendix: Programme Learning Outcomes and Curricula

According to the Self-Assessment Report, the following **Objectives and Learning Outcomes** shall be achieved by the Bachelor's degree programme Biology:

Programme Objectives:

The objective of the Biology Study Program of FMIPA UNY is to produce Biology graduates who have competencies as:

- 1) Bachelor of Biology who has religious values, humanity, and concern for the environment.
- 2) Bachelor of Biology who has the qualifications and competence as an excellent, creative and innovative research assistant who can play a role in local, national, and global communities by upholding academic norms, values, and ethics.
- 3) Bachelor of Biology who is able to apply biological sciences to improve the quality of society's life and the environment.
- 4) Bachelor of Biology who is able to make a career and create job opportunities / entrepreneurship in the field of biology which also contribute to the community in an accountable and credible manner.

Programme Learning Outcomes:

- | | |
|--------------|---|
| PLO-1 | Obeying the law and being discipline in community and state life, by internalizing academic values, norms, and ethics |
| PLO-2 | Being adaptive, creative, innovative in applying the concepts of Biology and other related fields |
| PLO-3 | Having nationalism and responsibility for the country by contributing to the improvement of the quality of society life in the Pancasila civilization |
| PLO-4 | Upholding the values of religiosity and humanity and caring for the environment |
| PLO-5 | Mastering the techniques and methodologies in Biology as well as familiar with the equipment used in Biology laboratories in order to get the knowledge of Biology (how we know what we know) |
| PLO-6 | Comprehensively mastering Biology (core biology) to solve problems in the field of Biology (problem-solving) and to underline the concepts of related sciences |
| PLO-7 | Having managerial ability to supervise and evaluate workers and optimizing the networks in order to develop professionalism |
| PLO-8 | Possessing scientific skills to support the ability to speak in local, national, and international forums |

- PLO-9** Being skillful in applying the techniques used in laboratories and daily life
- PLO-10** Being able to work and create jobs/being an entrepreneur in the field of Biology
- PLO-11** Being skillful in utilizing local potentials according to the special interests of Biology studies

The following curriculum is presented:

SEMESTER I

No	Code	Courses	Credits			
			T	P	F	S
1	MKU6201	Islamic Education ¹⁾	2			2
	MKU6202	Catholic Education ¹⁾				
	MKU6203	Christian Education ¹⁾				
	MKU6204	Hindu Education ¹⁾				
	MKU6205	Buddhist Education ¹⁾				
	MKU6206	Confucian Education ¹⁾				
2	MKU6216	Social Literacy and Humanity	2			2
3	MKU6212	Digital Transformation	2			2
4	MKU6207	Civic Education	2			2
5	FMI6202	Statistics	2			2
6	BIO6201	Plant Anatomy	2			2
7	BIO6102	Lab Work of Plant Anatomy		1		1
8	BIO6203	Plant Morphology	2			2
9	BIO6104	Lab Work of Plant Morphology		1		1
10	BIO6205	Invertebrates Biology	2			2
11	BIO6106	Lab Work of Invertebrates Biology *)		1		1
12	BIO6207	Biochemistry	2			2
13	BIO6108	Lab Work of Biochemistry		1		1
SUM			18	4	-	22

SEMESTER II

No	Code	Courses	Credits			
			T	P	F	S
1	MKU6208	Pancasila	2			2
2	MKU6209	Indonesian Language	2			2
3	BIO6209	Animal Anatomy and Histology	2			2
4	BIO6110	Lab work of Animal Anatomy and Histology		1		1
5	BIO6211	Vertebrates Biology	2			2
6	BIO6112	Lab Work of Vertebrates Biology *)		1		1
7	BIO6213	Plant Systematics	2			2
8	BIO6114	Lab Work of Plant Systematics		1		1
9	BIO6215	Plant Physiology	2			2
10	BIO6116	Lab Work of Plant Physiology		1		1
11	BIO6217	Cell and Molecular Biology	2			2
12	BIO6118	Lab Work of Cell and Molecular Biology		1		1
13	BIO6219	Biometrics	2			2
14	BIO6120	Lab Work of Biometrics		1		1
SUM			16	6		22

SEMESTER III

No	Code	Courses	Credits			
			T	P	F	S
1	MKU6213	Creativity, Innovation and Entrepreneurship	2			2
2	BIO6221	Ecology	2			2
3	BIO6122	Lab Work of Ecology		1		1
4	BIO6223	Animal Physiology	2			2
5	BIO6124	Lab Work of Animal Physiology		1		1
6	BIO6225	Genetics	2			2
7	BIO6126	Lab Work of Genetics		1		1
8	BIO6227	Microbiology	2			2
9	BIO6128	Lab Work of Microbiology		1		1
10	BIO6229	Biotechnology	2			2
11	BIO6130	Lab Work of Biotechnology		1		1
12	BIO6231	Behavior of Organisms	2			2
13	BIO6232	Philosophy of Science	2			2
SUM			16	5		21

SEMESTER IV

No	Code	Courses	Credits			
			T	P	F	S
1	MKU6211	English	2			2
2	FMI6201	Insights and studies of mathematics and natural science	2			2
3	BIO6233	Environmental Science	2			2
4	BIO6134	Lab Work of Environmental Science		1		1
5	BIO6235	Plant Developmental Biology	2			2
6	BIO6136	Lab Work of Plant Developmental Biology		1		1
7	BIO6237	Bivariate Biological Research Methodology	2			2
8	BIO6138	Lab Work of Bivariate Biological Research Methodology		1		1
9	BIO6239	Marine Biology	2			2
10	BIO6140	Lab Work of Marine Biology *)		1		1
11	BIO6141	Plant Tissue Culture	1			1
12	BIO6242	Lab Work of Plant Tissue Culture		2		2
13	BIO6243	Human Biology and Nutrition	2			2
14	BIO6144	Lab Work of Human Biology and Nutrition		1		1
SUM			15	7		22

SEMESTER V

No	Code	Courses	Credits			
			T	P	F	S
1	BIO6245	Animal Developmental Biology	2			2
2	BIO6146	Lab Work of Animal Developmental Biology		1		1
3	BIO6247	Multivariate Biological Research Methodology	2			2
4	BIO6148	Lab Work of Multivariate Biological Research Methodology		1		1
5	BIO6249	Soil Biology	2			2
6	BIO6150	Lab Work of Soil Biology		1		1
7	BIO6151	Microtechnique	1			1
8	BIO6252	Lab Work of Microtechnique		2		2
9	BIO6253	Evolution	2			2
10	BIO6154	Lab Work of Evolution		1		1
		Sub Total	9	6		15
11		Elective courses in study program				0-2
12		Elective Courses outside the Study Program in UNY				7
SUM						22-24

SEMESTER VI

No	Code	Courses	Credits			
			T	P	F	S
1		Elective Courses outside the Study Program in UNY				9-10
2		Elective Courses outside UNY				8-12
		SUM				17-22

*Mata Kuliah Pilihan Prodi Biologi

SEMESTER VII

No	Code	Courses	Credits			
			T	P	F	S
1	MKU6614	Community Service Program			6	6
2	PKL6601	Work Practice			6	6
		Elective Courses outside the Study Program in UNY				2-3
SUM					12	14-15

SEMESTER VIII

No	Code	Courses	Credits			
			T	P	F	S
1	BIO6855	Undergraduate thesis		8		8
SUM				8		8

According to the Self-Assessment Report, the following **Objectives and Learning Outcomes** shall be achieved by the Bachelor's degree programme Biology Education:

Programme Objectives:

- Having competency as a superior, creative and innovative Senior High School biology teacher / educator candidate while upholding the values of piety, independence, and intellectuality.
- Able to conduct research that can contribute for solving biological education problems especially through the development of learning resources based on local wisdom.
- Having insight and competence in entrepreneurship both independently or together with others in the field of biology or biological education which are able to contribute to the surrounding community in an accountable, credible, and transparent manner.

Programme Learning Outcomes:

PLO 1	Being pious to God Almighty and upholding humanity values in conducting the duties.
PLO 2	Having the attitudes with society, nation, and state values with the foundation of Pancasila.
PLO 3	Demonstrating responsibility, independence, entrepreneurship, and adaptation in conducting the duties.
PLO 4	Mastering basic biology and other relevant knowledge with mathematics and natural sciences.
PLO 5	Understanding the principles of TPACK (Technological Pedagogical and Content Knowledge) in biology learning.
PLO 6	Mastering the use of information and communication technology in biology learning.
PLO 7	Being able to do independent laboratory work and fieldwork.
PLO 8	Being able to plan, implement, assess, and follow up the educational biology learning.
PLO 9	Mastering the research methods in biology education as well as its applications.
PLO 10	Being able to communicate and collaborate well both verbally and non-verbally.
PLO 11	Possessing managerial skill of the profession.
PLO 12	Improving the professional expertise through training, work experience or sustainable education.

Domain	Description	PLO
Attitude	Religiousness and humanity values	PLO1
	Society and state values	PLO2
	Independence, entrepreneurship and scientific attitude	PLO3
	Biological content knowledge	PLO4

Knowledge	Pedagogical knowledge	PLO5
	Digital literacy	PLO6
Specific Skill	Laboratory management	PL07
	Design, implement, evaluate, and follow up on learning	PLO8
	Being able to design and conduct research, as well as disseminate the research findings	PLO9
General Skill	Communicative and cooperative abilities	PLO10
	Managerial abilities	PLO11
	Sustainable improvement on professionalism	PLO12

0 Appendix: Programme Learning Outcomes and Curricula

The following curriculum is presented:

Course Code	Course Name	Course Types and Credit Units (SKS)				Workload (in hours per semester)				
		Compulsory			Elective	Lecture / Seminar	Labwork / Fieldwork	Self-Study	Total	ECTS
		University level	Faculty Level	Programme Course	Programme Course					
Semester 1										
MKU6201	Islamic education *	2				2			2	3,2
MKU6202	Catholic Education *	2				2			2	3,2
MKU6203	Christian Education *	2				2			2	3,2
MKU6204	Hindu Education *	2				2			2	3,2
MKU6205	Buddhist Education *	2				2			2	3,2
MKU6206	Confucian Education *	2				2			2	3,2
MKU6207	Civic education	2				2			2	3,2
MDK6201	Educational Science	2				2			2	3,2
MDK6202	Educational Psychology	2				2			2	3,2
MKU6212	Digital Transformation	2				2			2	3,2
FMI6202	Statistics		2			2			2	3,2
FMI6201	Mathematics and Science Insights and Studies		2			2			2	3,2

MKU621 6	Social Literacy and Humanity	2				2			2	3,2
BIL6225	Animal Diversity			2		2			2	3,2
BIL6126	Laboratory Work in Animal Diversity			2				1	1	1,6
BIL6227	Plant Diversity			2		2			2	3,2
BIL6128	Laboratory Work in Plant Anatomy and Morphology			2				1	1	1,6
Total for Semester 1		34				30,00	0	2	32,00	51,2
Semester 2										
MKU620 9	Indonesian Language	2				2			2	3,2
MKU621 1	English Language	2				2			2	3,2
MDK620 4	Educational Sociology and Anthropology	2				2			2	3,2
MKU620 8	Pancasila	2				2			2	3,2
KPB6201	Biology Curriculum and Learning			2		2			2	3,2
BIL6205	Ecology			2		2			2	3,2
BIL6106	Laboratory Work in Ecology			1				1	1	1,6
BIL6201	Biochemistry			2		2			2	3,2
BIL6102	Laboratory Work in Biochemistry			1			1		1	1,6
BIL6215	Plant Anatomy and Morphology			2		2			2	3,2
BIL6116	Laboratory Work in Plant Anatomy and Morphology			1			1		1	1,6
BIL6221	Animal Anatomy and Histology			2		2			2	3,2
BIL6122	Laboratory Work in Animal Anatomy and Histology			1			1		1	1,6
Total for Semester 2		12				8	1	1	12	19,2
Semester 3										
KPB6203	Biology Learning Media			2		2			2	3,2

KPB6202	Biology Learning Strategy			2		2			2	3,2
PPB6202	Biological Research Methodology			2		2			2	3,2
PBD6201	Biology Education			2		2			2	3,2
BIL6229	Nutrition and Health			2		2			2	3,2
BIL6130	Laboratory Work in Nutrition and Health			1			1		1	1,6
BIL6209	Genetics			2		2			2	3,2
BIL6110	Laboratory Work in Genetics			1			1		1	1,6
BIL6213	Microbiology			2		2			2	3,2
BIL6114	Laboratory Work in Microbiology			1			1		1	1,6
BIL6207	Environmental Science			2		2			2	3,2
BIL6108	Laboratory Work in Environmental Science			1				1	1	1,6
BIL6203	Cell and Molecular Biology			2		2			2	3,2
BIL6104	Laboratory Work in Cell and Molecular Biology			1			1		1	1,6
Total for Semester 3				23		18	4	1	23	36,8
Semester 4										
MDK6203	Education Management	2				2			2	3,2
KPB6204	Biology Learning Assessment			2		2			2	3,2
PPB6201	Biology Education Research Methodology			2		2			2	3,2
BIL6231	Human Biology			2		2			2	3,2
BIL6132	Laboratory Work in Human Biology			1			1		1	1,6
BIL6219	Animal physiology			2		2			2	3,2
BIL6120	Laboratory Work in Animal Physiology			1			1		1	1,6

BIL6217	Plant Physiology			2		2			2	3,2
BIL6118	Laboratory Work in Plant Physiology			1			1		1	1,6
BIL6211	Evolution			2		2			2	3,2
BIL6112	Laboratory Work in Evolution			1				1	1	1,6
PPB6205	Biology Teaching Material Development			2			2		2	3,2
BIL6235	Laboratory Management			2		2				
Total for Semester 4				18		14	3	1	18	32
Semester 5										
PEN6201	Micro Learning			2			2		2	3,2
PPB6204	Development of Biology Learning Resources			2			2		2	3,2
BIL6223	Biotechnology			2		2			2	3,2
BIL6124	Laboratory Work in Biotechnology			1			1			
BIL6236	Laboratory Work in Microtechnical			2			2			
BIL6237	Organism Behavior			2		2			2	3,2
BIL6238	Developmental Biology			2		2				
BIL6239	Laboratory Work in Developmental Biology			2			2		2	3,2
	ELECTIVE COURSES IN THE STUDY PROGRAM ⁷⁾			0 - 3					0 - 3	

		ELECTIVE COURSES OUT OF THE STUDY PROGRAM WITHIN UNIVERSITY				4				4	6,4
Total Semester 5		19					6	9	0	14	22,4
Semester 6											
PPB6203	Biology Education Seminar			2			2		2	3,2	
BIL6133	Bioinformatics			1		1			1	1,6	
BIL6134	Laboratory Work in Bioinformatics			1			1		1	1,6	
	ELECTIVE COURSES IN PRODI 7)								range 0 to 3		
	ELECTIVE COURSES OUTSIDE OF THE UNIVERSITY								range 8 to 10		
	ELECTIVE COURSES OUTSIDE THE UNIVERSITY								range to 4 to 6		
Total for Semester 6		4					1	3	0	16 - 23	6,4
Semester 7											
MKU6213	Creativity, Innovation, and Entrepreneurship ²⁾	2				2			2	3,2	
MKL6601	Educational Practice	6		6				6	6	9,6	
MKL6604 Community Service Program ³⁾		6							6	6	9,6
Total for Semester 7		14						0		8	12,8
Semester 8											
TAM6801	Thesis			8				8	8	12,8	
Total for Semester 8		8					0	0	8	8	12,8
Total for 8 Semester		132									

According to the Self-Assessment Report, the following **Objectives and Learning Outcomes** shall be achieved by the Master's degree programme Biology Education:

Programme Objectives:

1. Academic Excellence

Produce graduates with advanced pedagogical and biological knowledge to innovate biology education at higher education and school levels.

2. Research Competence

Develop skilled researchers in biology education who contribute to solving national and global educational challenges.

3. Curriculum and Instructional Innovation

Equip graduates to design, implement, and evaluate biology curricula and teaching materials aligned with technological and societal needs.

4. Professional Leadership

Prepare graduates to become educators, curriculum developers, or education policymakers with integrity, adaptability, and leadership in the era of Industry 4.0.

Programme Learning Outcomes:

PLO-1: Apply scientific attitudes, curiosity, environmental awareness, tolerance, and critical thinking within lifelong learning principles.

PLO-2: Analyze essential and advanced biology materials as content and context for biology learning at universities/schools

PLO-3: Developing innovative biology curriculum and learning in schools/universities.

PLO-4: Developing biology learning media and materials based on technology and/or local potential/wisdom

PLO-5: Developing assessment and evaluation of biology learning in universities/schools

PLO-6: Solving biology learning problems through research and/or studies based on multi/interdisciplinary approaches

PLO-7: Developing Science and Technology in the Field of Biology Education through research and/or innovative work

PLO-8: Communicate ideas, analysis results, and biology education research orally and/or in writing at the national and/or international level

PLO-9: Developing laboratory-based biology learning activities (indoor or outdoor laboratory)

PLO-10: Analyzing biology education phenomena and trends through reviews of national and international publications

PLO-11: Analyzing the role and position of biology education/learning for ESD

0 Appendix: Programme Learning Outcomes and Curricula

The following curriculum is presented:

Course Code	Course Name	Course Types and Credit Units (SKS)					Workload (in hours per semester)				ECTS
		Compulsory			Elective		Lecture/ Seminar	Labwork/ Fieldwork	Self- Study	Total	
		University Level	Faculty Level	Pro- gramme Course	Pro- gramme Course	Minor					
Semester 1											
FMI8202	Statistics		2				90,66	-	90,66	181,32	6,46
FMI8303	Educational Research Methodology		3				136	-	136	272	9,69
PBI8204	Plant Biology for Biology Education			2			90,66	-	90,66	181,32	6,46
PBI8205	Animal Biology for Biology Education			2			90,66	-	90,66	181,32	6,46
PBI8206	Microbiology and Mycology for Biology Education			2			90,66	-	90,66	181,32	6,46
PBI8208	Local Culture and Potential in Biology Education			2			90,66	-	90,66	181,32	6,46
	Students take 2* sks (credits) from the following elective courses:										
PBI8214	STEM Application in Biology Education				2		90,66	-	90,66	181,32	6,46
PBI8215	E-Learning Development in Biology Education				2		90,66	-	90,66	181,32	6,46
PBI8216	Cell and Molecular Biology for Biology Education				2		90,66	-	90,66	181,32	6,46
Total for Semester 1		15					679,96	0	679,96	1359,92	48,45
Semester 2											
FMI8201	Philosophy of Science		2				90,66	-	90,66	181,32	6,46

[illegible]

PBI8309	Practicum on Learning Innovation in Schools and Higher Education			3			90,66	90,66	90,66	271,98	9,69
PBI8310	Thesis Proposal			3			90,66	90,66	90,66	271,98	9,69
	Students take 2* sks (credits) from the following elective courses:										
PBI8213	Issues and Trends in Biology Education				2		90,66	-	90,66	181,32	6,46
PBI8219	Biology Laboratory Management				2		90,66	-	90,66	181,32	6,46
Total for Semester 3		6					181,32	181,32	181,32	543,96	19,38
Semester 4											
PBI8612	Thesis			6			-	544	-	544	19,38
Total for Semester 4		6					0	544	0	362,67	12,8
Total for All Semester		40					1450,57	725,32	1450,57	3445,13	122,62

According to the Self-Assessment Report, the following **Objectives and Learning Outcomes** shall be achieved by the Bachelor's degree programme Chemistry:

Programme Objectives:

1. Graduates demonstrate piety, noble character, integrity, independence, responsibility, and a strong sense of nationalism in their personal and professional lives
2. Graduates demonstrate skills and creativity in the field of chemistry, enabling them to achieve a competitive advantage at the Southeast Asian level.
3. Graduates master the scientific foundations necessary to develop their expertise in chemistry, enabling them to attain competence in the field as well as in specific chemical specializations.
4. Graduates apply their knowledge of chemistry to support innovation, productivity, and problem-solving that benefit society.
5. Graduates perform their professional roles in chemistry responsibly, ethically, and effectively in accordance with established standards.

Programme Learning Outcomes:

Domain	Programme Learning Outcomes	
Attitude	PLO1	Apply a religious attitude and human values
Knowledge	PLO2	Apply the ICT effectively in their scientific field
	PLO3	Integrate various strategies and techniques in chemical research to solve problems.
	PLO4	Apply the development of science and technology as a support for lifelong learning
	PLO5	Analyze chemical concepts and a mindset oriented toward life skills
Generic Skills	PLO6	Apply an independent attitude, be able to adapt, and be responsible in completing tasks
	PLO7	Perform to communicate ideas both orally and in writing
Specific skills	PLO8	Apply chemistry to support productive and innovative behavior to solve problems in society.
	PLO9	Integrate the mathematical and science concepts to solve problems in the field of chemistry.
	PLO10	Apply the strategy and innovation in chemical research techniques

0 Appendix: Programme Learning Outcomes and Curricula

The following curriculum is presented:

Course Code	Course Name	Course Types and Credit Units (SKS)					Workload (in hours per semester)				
		Compulsory			Elective		Lecture/ Seminar	Labwork/ Fieldwork	Self-Study	Total	ECTS
		University Level	Faculty Level	Pro- gramme Course	Pro- gramme Course	Minor					
Semester 1											
MKU6201	Religion Education	2					26,67	-	64	90,67	3,2
MKU6207	Civic Education	2					26,67	-	64	90,67	3,2
MKU6211	English	2					27,67	-	64	90,67	3,2
MKU6212	Digital Transformation	2					26,67	-	64	90,67	3,2
MKU6213	Creativity, Innovation, and Entrepreneurship	2					26,67	-	64	90,67	3,2
MKU6216	Social Literacy and Humanity	2					26,67	-	64	90,67	3,2
KIM6401	General Chemistry			4			40	45,33	96	181,33	6,4
KIM6202	Physics for Chemistry			2			26,67	-	64	90,67	3,2
KIM6303	Mathematics for Chemistry			3			40	-	96	136	4,8
Total for Semester 1		21					267,69	45,33	640	952,02	33,6
Semester 2											
MKU6208	Pancasila	2					26,67	-	64	90,67	3,2
FMI6201	Studies of Mathematics and Natural Sciences										
	Studies of Mathematics and Natural Sciences		2				27,67	-	64	90,67	3,2
FMI6202	Statistics		2				26,67	-	64	90,67	3,2
KIM6404	Chemistry Equilibrium			4			40	45,33	96	181,33	6,4
KIM6309	Non-metal Inorganic Chemistry			3			26,67	45,33	96	168	4,8
KIM6214	Environmental Chemistry			2			26,67	-	64	90,67	3,2

KIM6410	Fundamental of Analytical Chemistry			4			40	45,33	96	181,33	6,4
KIM6227	Fundamental of Computational Chemistry			2			13,34	45,33	64	122,67	3,2
Total for Semester 2				21			227,69	181,32	608	1016,01	33,6
Semester 3											
KIM6405	Molecular Dynamics			4			40	45,33	96	181,33	6,4
KIM6406	Fundamental of Organics Chemistry			4			40	45,33	96	181,33	6,4
KIM6309	Metal Inorganic Chemistry			3			26,67	45,33	96	168	4,8
KIM6311	Chemical Separation Method			3			26,67	45,33	96	168	4,8
KIM6215	Quantum Chemistry			2			26,67	-	64	90,67	3,2
KIM6225	Chemical Laboratory Management			2			26,67	-	64	90,67	3,2
KIM6228	Advanced of Computational Chemistry			2			13,34	45,33	64	122,67	3,2
Total for Semester 3				20			200,02	226,65	576	1002,67	32
Semester 4											
MKU6209	Bahasa Indonesia	2					26,67	-	64	90,67	3,2
KIM6307	Structure and Reactivity of Organic Compounds			3			26,67	45,33	64	136	4,8
KIM6412	Biochemistry			4			40	45,33	96	181,33	6,4
KIM6213	Nuclear Chemistry			2			26,67	-	64	136	3,2
KIM6218	Polymer Chemistry			2			26,67	-	64	136	3,2
KIM6322	Coordination Chemistry			3			26,67	45,33	64	136	4,8
KIM6324	Chemical Instrumentation			3			26,67	45,33	64	136	4,8
	Specialization Course				2		26,67	-	64	90,67	3,2
KIM6249	Petroleum Chemistry and Energy				2		26,67	-	64	90,67	3,2
KIM6250	Fermentation Technology				2		26,67	-	64	90,67	3,2
KIM6258	Industrial Management				2		26,67	-	64	90,67	3,2
Total for Semester 4				21			226,69	181,32	544	1042,67	33,6
Semester 5											
KIM6217	Colloidal and Surface			2			26,67	-	64	90,67	3,2

KIM6219	Physical Organic Chemistry			2			26,67	-	64	90,67	3,2
KIM6220	Determination of the structure of Organic Compounds			2			26,67	-	64	90,67	3,2
KIM6221	Natural Products Chemistry			2			26,67	-	64	90,67	3,2
KIM6322	Coordination Chemistry			2			26,67	-	64	90,67	3,2
KIM6223	Crystallochemistry			2			27,67	-	64	90,67	3,2
KIM6226	Physical Biochemistry			2			26,67	-	64	90,67	3,2
KIM6229	Molecular Biotechnology			2			27,67	-	64	90,67	3,2
	Specialization Course				6		80,01	-	192	272,01	9,6
KIM6231	Chemical Applications of Group Theory				2		26,67	-	64	90,67	3,2
KIM6232	Inorganic Chemical Synthesis				2		26,67	-	64	90,67	3,2
KIM6233	Solid Inorganic Chemistry				2		26,67	-	64	90,67	3,2
KIM6234	Structural Analysis of Inorganic Compounds				2		26,67	-	64	90,67	3,2
KIM6235	Nanochemistry Technology				2		26,67	-	64	90,67	3,2
KIM6241	Pharmaceutical Chemistry				2		26,67	-	64	90,67	3,2
KIM6242	Molecular Biotechnology Chemistry				2		26,67	-	64	90,67	3,2
KIM6243	Food Chemistry				2		26,67	-	64	90,67	3,2
KIM6262	Medicinal Chemistry				2		26,67	-	64	90,67	3,2
KIM6254	Radioanalysis				2		26,67	-	64	90,67	3,2
KIM6255	Management of Hazardous and Toxic Waste				2		26,67	-	64	90,67	3,2
KIM6256	Surfactants and Additives				2		26,67	-	64	90,67	3,2
KIM6253	Industrial Material Analysis				2		26,67	-	64	90,67	3,2
KIM6257	Industrial Chemistry				2		26,67	-	64	90,67	3,2
Total for Semester 5				22			668,75	0	1600	2266,75	80
Semester 6											
KIM6330	Research Methodology in Physics Education			3			26,67	45,33	64	136	4,8
	Specialization Course				16		213,36	-	192	725,36	25,6

236	Bioinorganic				2		26,67	-	64	90,67	3,2
KIM6237	Organometal				2		26,67	-	64	90,67	3,2
KIM6238	Material Chemistry				2		26,67	-	64	90,67	3,2
KIM6239	Membrane Technology				2		26,67	-	64	90,67	3,2
KIM6240	Catalyst Chemistry				2		26,67	-	64	90,67	3,2
KIM6244	Synthetic Organic Chemistry				2		26,67	-	64	90,67	3,2
KIM6245	Isolation and Identification of Natural Material Compounds				2		26,67	-	64	90,67	3,2
KIM6246	Organic Compound Reaction Mechanism				2		26,67	-	64	90,67	3,2
KIM6247	Toxicology				2		26,67	-	64	90,67	3,2
KIM6248	Enzymology				2		26,67	-	64	90,67	3,2
KIM6249	Petroleum Chemistry and Energy				2		26,67		64	90,67	3,2
KIM6250	Fermentation Technology				2		26,67		64	90,67	3,2
KIM6251	Electrochemical Analysis				2		26,67		64	90,67	3,2
KIM6252	Corrosion and Electroplating Chemistry				2		26,67	-	64	90,67	3,2
Total for Semester 6		19								861,36	30,4
Semester 7											
MKL 6603	Internship			6			-	272	-	272	9,6
MKL 6604	Community Service	6					-	272	-	272	9,6
Total for Semester 7		12						544		544	19,2
Semester 8											
FSK6801	Undergraduate Thesis			8			-	362,67	-	362,67	12,8
Total for Semester 8		8						362,67		362,67	12,8
Total for 8 semesters		144					8048,15			230,4	

According to the Self-Assessment Report, the following **Objectives and Learning Outcomes** shall be achieved by the Bachelor's degree programme Chemistry Education:

Programme Objectives:

1. **PO-1:** Graduates demonstrate piety, noble character, and pedagogical, professional, social, and scientific competencies in chemistry education; innovating and contributing globally.
2. **PO-2:** Graduates demonstrate the ability to produce research that is superior, creative, innovative, and beneficial to the world of education and society.
3. **PO-3:** Graduates disseminate knowledge and research for the benefit of the community and industry.
4. **PO-4:** Graduates demonstrate the ability to generate mutually beneficial cooperation at the national, regional and international levels
5. **PO-5 :** Graduates demonstrate devotion, independence, and intellectual character within the campus community and having a love for the nation, state, and homeland.

Programme Learning Outcomes:

Domain	Programme Learning Outcomes	
Attitude	PLO1	Apply a religious, moral, ethical and spirit of Indonesian character in group life, society and the state.
	PLO2	Apply independence and responsibility in working individually and in groups in daily life and society.
Knowledge	PLO3	Apply the concepts of chemistry, education, and chemistry education to solve problems in careers, daily life and social life.
	PLO4	Integrate chemistry concepts, laboratory management, chemistry pedagogical knowledge, and ICT to support effective learning.
	PLO5	Apply the research methodology of chemistry education in supporting educational programs for sustainable development with academic integrity.
	PLO6	Apply the concept of educational program management and entrepreneurship in general as well as in the field of chemistry and chemical education.
General Skills	PLO7	Apply critical and creative thinking skills, prevent plagiarism, and argue scientifically in dealing with problems in careers, daily life and social life.

	PLO8	Apply collaborative skills to build networks, self-development, and solve problems in career, daily life and community life.
Specific skills	PLO9	Analyze chemistry learning in schools in accordance with the TPACK framework.
	PLO10	PApplY OHS (Occupational Safety and Security) principles and environmental issues in laboratory activities in an innovative and adaptive manner.
	PLO11	Apply solutions from research to chemistry education, and publish them with integrity supported by digital competencies.
	PLO12	Apply scientific communication in Indonesian and English to convey ideas in forums and support sustainable development in chemistry education.

0 Appendix: Programme Learning Outcomes and Curricula

The following curriculum is presented:

Course Code	Course Name	Course Types and Credit Units (SKS)				Workload (in hours per semester)				
		Compulsory			Elective	Lecture / Seminar	Labwork / Fieldwork	Self-Study	Total	ECTS
		Univer- sity le- vel	Fa- culty Le- vel	Pro- gramme Course	Pro- gramme Course					
Semester 1										
MKU6201	Religious Education	2				26,67		64	90,67	3,2
MKU6207	Civic Education	2				26,67		64	90,67	3,2
MKU6216	Social and Humanitarian Literacy	2				26,67		64	90,67	3,2
MDK6201	Educational Science	2				26,67		64	90,67	3,2
MDK6202	Educational Psychology	2				26,67		64	90,67	3,2
MDK6203	Education Management	2				26,67		64	90,67	3,2
FMI6201	Perspectives & Studies in Mathematics and Natural Sciences		2			26,67		64	90,67	3,2
MPK6636	General Chemistry 1			3		26,67	45,33	64	136,00	4,8
MPK6637	General Chemistry 2			3		26,67	45,33	64	136,00	4,8
Total for Semester 1		20				240,00	90,66	576	906,66	32
Semester 2										
MKU6208	Pancasila	2				26,67		64	90,67	3,2
MKU6209	Indonesian Language	2				26,67		64	90,67	3,2
MKU6211	English	2				26,67		64	90,67	3,2
MKU6212	Digital Transformation	2				26,67		64	90,67	3,2
MPK6201	Chemistry Curriculum and Instruction			2		26,67		64	90,67	3,2

MPK6238	Mathematics for Chemistry			2		26,67		64	90,67	3,2
MPK6339	Chemical Equilibrium			3		26,67	45,33	64	136	4,8
MPK6341	Basic Organic Chemistry			3		26,67	45,33	64	136	4,8
MPK6344	Nonmetal Inorganic Chemistry			3		26,67	45,33	64	136	4,8
Total for Semester 2				21		240,03	135,99	576	952,02	33,6
Semester 3										
MDK6204	Sociology and Anthropology of Education	2				26,67		64	90,67	3,2
MPK6202	Instructional Models in Chemistry Learning			2		26,67		64	90,67	3,2
MPK6203	Media and Learning Resources in Chemistry			2		26,67		64	90,67	3,2
MPK6204	Assessment in Chemistry Learning			2		26,67		64	90,67	3,2
MPK6324	Structure and Reactivity of Organic Compounds			3		26,67	45,33	64	136	4,8
MPK6345	Inorganic Chemistry of Metals			3		26,67	45,33	64	136	4,8
MPK6347	Fundamentals of Analytical Chemistry			3		26,67	45,33	64	136	4,8
MPK6340	Molecular Dynamics			3		26,67	45,33	64	136	4,8
MPK6252	Management of School Chemistry Laboratory			2		26,67		64	90,67	3,2
Total for Semester 3				22		240,03	181,32	576	997,35	35,2
Semester 4										
MDK6204	Creativity, Innovation and Entrepreneurship	2				26,67		64	90,67	3,2
MPK6211	Chemical Visualization for Learning			2		26,67		64	90,67	3,2
MPK6209	Chemistry for Senior High School			2		26,67		64	90,67	3,2
MPK6210	Chemistry for Vocational High School			2		26,67		64	90,67	3,2
MPK6243	Structure Determination of Organic Compounds			2		26,67		64	90,67	3,2
MPK6246	Coordination and Organometallic Chemistry			2		26,67		64	90,67	3,2
MPK6348	Chemical Separation Methods			3		26,67	45,33	64	136	4,8
MPK6251	Environmental Chemistry			2		26,67		64	90,67	3,2
	Disciplinary Enrichment in Chemistry Education 1				2	26,67		64	90,67	3,2

	Disciplinary Enrichment in Chemistry Education 2				2	26,67		64	90,67	3,2
	Elective Course Outside the Major 1				2	26,67		64	90,67	3,2
Total for Semester 4		23				293,37	45,33	704	1042,7	36,8
Semester 5										
FMI6202	Statistics		2			26,67		64	90,67	3,2
MPK6256	Chemistry-based Entrepreneurship			2			90,66		90,66	3,2
MPK6208	Learning Program Development Chemistry			2			90,66		90,66	3,2
MPK6207	Current Research in Chemistry Learning			2		26,67		64	90,67	3,2
MPK6212	Context-Based Chemistry Learning			2		26,67		64	90,67	3,2
MPK6350	Biochemistry			3		26,67	45,33	64	136	4,8
MPK6349	Chemical Instrumentation			3		26,67	45,33	64	136	4,8
	Disciplinary Enrichment in Chemistry Education 4			2		26,67		64	90,67	3,2
	Elective Course Outside the Major 2			2		26,67		64	90,67	3,2
	Elective Course Outside the Major 3			2		26,67		64	90,67	3,2
Total Semester 5		22				213,36	271,98	512	997,34	35,2
Semester 6										
PEN6201	Microteaching			2			90,66		90,66	3,2
MPK6205	Research Methodology in Chemistry Education			2		26,67		64	90,67	3,2
MPK6206	Chemistry Education Research Instruments			2			90,66		90,66	3,2
MPK6213	Data Analysis in Chemistry Education Research			2		26,67		64	90,67	3,2
MPK6253	Green Materials Chemistry			2		26,67		64	90,67	3,2
MPK6254	Chemistry Research			2			90,66		90,66	3,2
MPK6255	Fundamentals of Computational Chemistry			2		26,67		64	90,67	3,2
	Disciplinary Enrichment in Chemistry Education Research			2		26,67		64	90,67	3,2
	Disciplinary Enrichment in Chemistry			2		26,67		64	90,67	3,2
	Elective Course Outside the Major 4			2		26,67		64	90,67	3,2

Total for Semester 6		20				186,69	271,98	448	906,67	32
Semester 7										
MKU6614	Community Service	6					272		272	9,6
PEN6601	School Teaching Practice			6			272		272	9,6
Total for Semester 7		12					544		544	19,2
Semester 8										
MPK6835	Undergraduate Thesis			8			362,67		362,67	12,8
MPK6214	Scientific Publication in Chemistry Education			2		26,67		64	90,67	3,2
Total for Semester 8		10				26,67	362,67	64	453,34	16
Total for 8 Semester		150								

According to the Self-Assessment Report, the following **Objectives and Learning Outcomes** shall be achieved by the Master's degree programme Chemistry Education:

Programme Objectives:

1. Analyze the field of chemistry education in terms of terminology from theory and practice, research, curriculum design and teaching-learning.
2. Evaluate, compare, and assess the effectiveness of chemistry teaching techniques and methods to make chemistry learning easier and more enjoyable.
3. analyze education management policies, curriculum, evaluation and teaching technologies related to chemistry learning.
4. develop the knowledge gained from research and discovery in the learning process to design instructional and curriculum development

Programme Learning Outcomes:

Domain	Programme Learning Outcomes	
Attitude	PLO1	Apply noble character, strong ethics, and good personality in collaboration, demonstrating social sensitivity and deep concern for the community and environment.
	PLO2	Apply respect for cultural diversity, different views and beliefs, demonstrate love for the homeland, and support world peace as responsible citizens.
	PLO3	Apply the spirit of prioritize the interests of the nation and the wider community, and uphold the rule of law.
	PLO4	Integrate the entrepreneurial spirit, academic values and norms related to honesty, ethics, attribution, copyright, confidentiality and data ownership
Knowledge	PLO5	Apply and develop science and technology in the field of chemistry education through scientific reasoning and research based on logical, critical, systematic, and creative thinking.
	PLO6	Develop chemistry education through scientific research, or produce scientific works along with research concepts based on scientific rules that are compiled in the form of a thesis.
	PLO7	Create and publish the results of research in the field of chemistry education in journals scientifically accredited nationally and internationally.

	PLO8	Develop the capacity of independent learning.
	PLO9	Evaluate structured learning skills to support self-development, scientific understanding, and career sustainability.
	PLO10	Analyze the ability to think critically, make appropriate decisions, and communicate effectively, academically, and ethically.
Generic Skills	PLO11	Develop and maintain networks with colleagues, including in research institutions and the wider community.
	PLO12	Construct and communicate scientifically and ethically accountable ideas and arguments through various media, especially to the academic community.
Specific skills	PLO13	Auditing, documenting, storing, secure, and rediscovering research data for future research purposes.
	PLO14	Analyze the scientific field of the research object and position it into the research map.
	PLO15	Conduct chemistry education research based on research maps, with an inter-disciplinary or multi-disciplinary approach, independently or in collaboration with other institutions.

The following curriculum is presented:

Course Code	Course Name	Course Types and Credit Units (SKS)				Workload (in hours per semester)				
		Compulsory			Elective	Lecture/ Seminar	Lab- work/ Field- work	Self- Study	Total	ECTS
		University Level	Faculty Level	Programme Course	Programme Course					
Semester 1										
FMI8201	Philosophy of Science		2			26,67	-	64	90,67	3,2
FMI8202	Statistics		2			26,67	-	64	90,67	3,2
FMI8203	Educational Research Methodology		3			40,00	-	64	104,00	4,8
MPK8110	Chemistry Practicum			1		-	45,33	-	45,33	1,6
MPK8102	Design and Implementation of the Chemistry Curriculum			2		26,67	-	64	90,67	3,2
MPK8204	Current Issues in Chemistry Education			2		26,67	-	64	90,67	3,2
MPK8206	Inorganic Structural Chemistry			2		26,67	-	64	90,67	3,2
MPK8209	Biomolecules and Genetic Engineering			2		26,67	-	64	90,67	3,2
	Elective Course 1*				2	26,67	-	64	90,67	3,2
Total for Semester 1		18				226,67	45,33	512,00	784,00	28,80
Semester 2										
MPK8201	Innovation in Chemistry Learning			2		26,67	-	64	90,67	3,2
MPK8203	Development of Assessment and Evaluation of Chemistry Education			2		26,67	-	64	90,67	3,2
MPK8205	Chemical Spectroscopy			2		26,67	-	64	90,67	3,2

MPK8207	Structural Elucidation of Organic Compound			2		26,67	-	64	90,67	3,2	
MPK8208	Solution Chemistry and Analytical Electrochemistry			2		26,67	-	64	90,67	3,2	
MPK8211	Thesis Proposal			2		-	90,67	64	154,67	3,2	
	Elective Course 2*				2	26,67	-	64	90,67	3,2	
Total for semester 2		14				160,00	90,67	448,00	698,67	22,40	
Semester 3											
MPK8213	Writing Scientific Papers			2		26,67	-	64	90,67	3,2	
MPK8612	Thesis			6			272		272	9,6	
Total for Semester 3		8				26,67	272	64	362,67	12,8	
*) Elective Course											
MPK8214	Computer Skills in Chemistry				2	26,67	-	64	90,67	3,2	
MPK8215	Models in Chemistry Learning				2	26,67	-	64	90,67	3,2	
MPK8216	Visuals and Visualization in Chemistry Education				2	26,67	-	64	90,67	3,2	
MPK8217	Chemistry Learning Practicum				2	26,67	-	64	90,67	3,2	
MPK8218	Special Topics in Chemistry				2	26,67	-	64	90,67	3,2	
MPK8220	Science and Ethics in Chemistry				2	26,67	-	64	90,67	3,2	
MPK8221	Problems and Their Solution in Chemistry Education				2	26,67	-	64	90,67	3,2	