ASIIN Seal

Accreditation Report

PhD Programmes
Biology
Chemistry
Material Science
Physics

Provided by
Universitas Indonesia

Version: 26 September 2025

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Program Studi Doktor Fisika	Doctoral Programme in Physics	ASIIN	National Accreditation Agency for Higher Education in Indonesia (BAN-PT) from 16.03.2021 until 16.03.2026	13
Program Studi Doktor Ilmu Bahan-bahan	Doctoral Programme in Material Science	ASIIN	Independent Accreditation Agency for Natural Sciences and Formal Sciences (LAMSAMA) from 26.05.2024 until 26.05.2029	05
Program Studi Doktor Ilmu Kimia	Doctoral Programme in Chemistry	National Accreditation Agency for Higher Education in Indonesia (BAN-PT) from 25.11.2020 until 25.11.2025		09
Program Studi Doktor Biologi	Doctoral Programme in Biology	Independent Accreditation Agency for Natural Sciences and Formal Sciences (LAMSAMA)		10

[1] ASIIN Seal for degree programmes.

[2] TC: Technical Committee for the following subject areas: TC 01 - Mechanical Engineering/Process Engineering; TC 02 - Electrical Engineering/Information Technology; TC 03 - Civil Engineering, Geodesy and Architecture; TC 04 - Informatics/Computer Science; TC 05 - Materials Science, Physical Technologies; TC 06 - Engineering and Management, Economics; TC 07 - Business Informatics/Information Systems; TC 08 - Agriculture, Forestry, Food Sciences, and Landscape Architecture; TC 09 - Chemistry; TC 10 - Life Sciences; TC 11 - Geosciences; TC 12 - Mathematics; TC 13 - Physics; TC 14 - Medicine.

		from 08.07.2023 until 08.07.2028		
Date of the contract: 28.10.2024 **Submission of the final version of the self-assessment report:** 02.02.2025 **Date of the onsite visit:** 29.-30.04.2025 **at:** Depok				
Expert panel: Prof. Dr. Robert Hänsch, Technical University of Braunschweig Prof. Dr. Jens Hartung, University of Kaiserslautern-Landau Prof. Dr. Alexander Heisterkamp, Leibniz University Hannover Prof. Dr. Heinrich Kern, Technical University Ilmenau Nick Wisely, Industrial representative Dina Riska, PhD-Student at Mulawarman University				
Representative of the ASIIN headquarter: Dr. Natalia Vega				
Responsible decision-making committee: Accreditation Commission for Degree Programmes				
Criteria used: European Standards and Guidelines as of March 15, 2015 ASIIN General Criteria, as of March 23, 2023 ASIIN Additional Criteria for Structured Doctoral Programmes as of March 15, 2021				

B Accreditation Status

Result Overview

The most recent decision for the ASIIN Seal was made by the ASIIN Accreditation Commission on 26 September 2025.

Degree Programmes	ASIIN Seal	Validity
Doctoral Programme in Biology	Accredited with requirements	26.09.2025 - 17.01.2027
Doctoral Programme in Chemistry	Accredited with requirements	26.09.2025 - 17.01.2027
Doctoral Programme in Material Science	Accredited with requirements	26.09.2025 - 17.01.2027
Doctoral Programme in Physics	Accredited with requirements	26.09.2025 - 17.01.2027

Fulfilment of the Accreditation Criteria

ASIIN General Criteria / Subject-Specific Criteria	Doctoral Programme in Biology	Doctoral Programme in Chemistry	Doctoral Programme in Material Science	Doctoral Programme in Physics
1 Degree programme: Concept, Content & Implementation				
1.1 Objectives and learning outcomes (intended qualification profile)	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.2 Title of the degree programme	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.3 Curriculum	Fulfilled	Fulfilled	Fulfilled	Fulfilled

ASIIN General Criteria / Subject-Specific Criteria	**Doctoral Programme in Biology**	**Doctoral Programme in Chemistry**	**Doctoral Programme in Material Science**	**Doctoral Programme in Physics**
1.4 Admission requirements	**Not fulfilled** Requirement A1	**Not fulfilled** Requirement A1	**Not fulfilled** Requirement A1	**Not fulfilled** Requirement A1
1.5 Workload and credits	Fulfilled	Fulfilled	Fulfilled	Fulfilled
1.6 Didactics and teaching methodology	Fulfilled	Fulfilled	Fulfilled	Fulfilled
2 Exams: System, Concept and Organisation				
2 Exams: System, Concept and Organisation	**Not fulfilled** Requirement A2	**Not fulfilled** Requirement A2	**Not fulfilled** Requirement A2	**Not fulfilled** Requirement A2
3 Resources				
3.1 Staff and staff development	Fulfilled	Fulfilled	Fulfilled	Fulfilled
3.2 Student support and student services	Fulfilled	Fulfilled	Fulfilled	Fulfilled
3.2 Funds and equipment	Fulfilled	Fulfilled	Fulfilled	Fulfilled
4 Transparency and Documentation				
4.1 Module descriptions	**Not fulfilled** Requirement A3	**Not fulfilled** Requirement A3	**Not fulfilled** Requirement A3	**Not fulfilled** Requirement A3
4.2 Diploma and Diploma Supplement	**Not fulfilled** Requirement A4	**Not fulfilled** Requirement A4	**Not fulfilled** Requirement A4	**Not fulfilled** Requirement A4
4.3 Relevant rules	Fulfilled	Fulfilled	Fulfilled	Fulfilled

ASIIN General Criteria / Subject-Specific Criteria	**Doctoral Programme in Biology**	**Doctoral Programme in Chemistry**	**Doctoral Programme in Material Science**	**Doctoral Programme in Physics**
5 Quality Management: Quality Assessment and Development				
5 Quality Management: Quality Assessment and Development	**Not fulfilled** Requirement A5	**Not fulfilled** Requirement A5	**Not fulfilled** Requirement A5	**Not fulfilled** Requirement A5
Additional Criteria for Structured Doctoral Programmes				
D 1 Research	**Not fulfilled** Requirement A2	**Not fulfilled** Requirement A2	**Not fulfilled** Requirement A2	**Not fulfilled** Requirement A2
D 2 Duration and Credits	**Not fulfilled** Requirement A1	**Not fulfilled** Requirement A1	**Not fulfilled** Requirement A1	**Not fulfilled** Requirement A1
D 3 Soft Skills and Mobility	Fulfilled	Fulfilled	Fulfilled	Fulfilled
D 4 Supervision and Assessment	Fulfilled	Fulfilled	Fulfilled	Fulfilled
D 5 Infrastructure	Fulfilled	Fulfilled	Fulfilled	Fulfilled
D 6 Funding	Fulfilled	Fulfilled	Fulfilled	Fulfilled
D 7 Quality Assurance	Fulfilled	Fulfilled	Fulfilled	Fulfilled

Requirements

For all programmes

A 1. (ASIIN 1.5, D2) Monitor reasons for longer length of study and take measures based on the results.

A 2. (ASIIN 2, D 1) An extended English abstract needs to be included in the doctoral dissertations.

A 3. (ASIIN 4.1) The module handbooks need to be reviewed and revised, particularly, in terms of content description, learning outcomes and examination forms.

A 4. (ASIIN 4.2) Ensure that the Diploma Supplement contains detailed information about the student's GPA relative to the cohort.

A 5. (ASIIN 5) Close the feedback loops and inform the students directly about the results of the course questionnaires.

Accreditation History

The programmes have not been previously accredited by ASIIN.

C Characteristics of the Degree Programmes

a) Name	Final degree (original/ English translation)	b) Areas of Speciali-zation	c) Corres-ponding level of the EQF[3]	d) Mode of Study	e) Double/ Joint Degree	f) Duration	g) Credit points/ unit	h) Intake rhythm/First time of offer
Doctoral Programme in Physics	Dr./Dr.	Physical Science	Level 8	Full time		6 semesters	158.4 ECTS/88 CP	Each semester /2017
Doctoral Programme in Material Science	Dr./Dr.	Materials Science	Level 8	Full time		6 semesters	158.4 ECTS/88 CP	Each semester /1983
Doctoral Programme in Chemistry	Dr./Dr.	Chemical Science	Level 8	Full time		6 semesters	158.4 ECTS/88 CP	Each semester /2001
Doctoral Programme in Biology	Dr./Dr.	Life Science	Level 8	Full time		6 semesters	158.4 ECTS/88 CP	Each semester /1998

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

Universitas Indonesia (UI) is an Indonesian public university established on 2 February 1950 and is one of the oldest institutions in the country. Its origins date back to 2 January 1849, with the establishment of the School of Health Sciences and Vaccines during the Dutch colonial era. UI has two campuses located in Depok, West Java, and Salemba, Jakarta, Indonesia. The Depok campus houses most of the faculties and is known for its extensive green areas and six lakes. UI is ranked 1st in Indonesia, 49th in Asia and 237th in the world in the QS World University Rankings 2024. In the THE World University Rankings 2024, UI is ranked within the 801–1000 bracket globally.

UI comprises 14 faculties, 2 schools, and 1 vocational programme, offering about 263 study programmes from which 34 are international programmes (delivered in English) and 15,6% doctoral programmes. The university currently has about 52,478 students enrolled and has produced over 400,000 graduates to date.

The Faculty of Mathematics and Natural Sciences (FMIPA) at Universitas Indonesia (UI) was established in 1960 and is located on the Depok campus. It offers a total of 19 study programmes, including four doctoral programmes that are the focus of this accreditation process.

In accordance with the vision and mission of the faculty, the institution is committed to the advancement of scientific knowledge through research and collaborative endeavours. A key objective of the faculty is to cultivate an academic and research culture that fosters innovation and solutions in support of sustainable development.

For the **Doctoral programme in Biology (DPBio)**, the institution has presented the following profile in the brochure as well as in the curriculum document and on the programme's website:

The vision of **DPBio** is as follows:

"To be the organizer of the tridharma of higher education that excels in the field of biodiversity, especially in the aspects of conservation and bioprospecting, which produces Doctors of Biology who are able to play a role at the national and global levels in advancing science, technology, and sustainable development".

The study programme's mission is:

1. "Organizing quality education, research, and community services, especially in the aspects of conservation and bioprospecting of Indonesia's biodiversity.
2. Producing Doctorates in biology who are able to design and manage research independently to create innovative outputs so that they can play a role at the

national and global levels in advancing science, technology, and sustainable development.
3. Utilizing the Indonesia's uniqueness of “megadiversity country” to strengthen research capabilities in the field of biodiversity, conservation, and prospecting through collaboration with various international universities and research institutions”.

For the **Doctoral programme in Chemistry (DPChem)**, the institution has presented the following profile in the brochure as well as in the curriculum document and on the programme’s website:

“The Chemical Science Doctoral Study Program FMIPA UI has a vision to become a center for education and study of chemistry with an inter-, multi-, and transdisciplinary approach, and gain international recognition. The program focuses on research that supports the fields of energy, environment, health, and food safety”.

DPChem mission is as follows:

1. “Carrying out tridharma activities to produce doctoral graduates in Chemistry who focus on energy, environment, and health and are able to compete globally, as well as have noble character and high ethics.
2. Creating an academic atmosphere and research culture for the advancement of Chemistry to produce solutions in the form of creative, original works.
3. Providing contributions and active roles in the development of Chemistry and its innovations independently and recognized nationally and internationally”.

For the **Doctoral programme in Material Science (DPMat)**, the institution has presented the following profile in the curriculum document and on the programme’s website:

The study programmes’ mission is:

“To become an excellent organizer of the tridharma of higher education in the field of materials science, which produces Doctors of Materials Science who are able to play a role at the national and global levels in advancing science, technology, and sustainable development”.

The vision of **DPMat** is as follows:

- "Organizing Doctoral education in Materials Science that produces graduates with the ability to be future leaders who are professional, intelligent, moral, have social sensitivity and are globally competitive.
- Playing an active role in the development of material science research to support national development and resilience and playing a role at the Southeast Asian level".

For the **Doctoral programme in Physics (DPPhy)**, the institution has presented the following profile in the brochure for prospective students as well as in the curriculum document:

The vision is as follows:

"To become a center for education and research in the field of Physics and Applied Physics that is superior and competitive and able to solve problems and challenges at the national and global levels, towards excellence in Southeast Asia."

"The mission of **DPPhy** is:

1. "To maintain and strengthen the excellence in education and research in Physics and Applied Physics.
2. Improve internal management that can encourage the active and productive involvement of teaching staff/lecturers and students to increase scientific activities and scientific works in physics and applied physics with national and international qualities.
3. To actively participate in providing services as a manifestation of the dedication and contribution of Physics and Applied Physics to the community.
4. To prepare graduates who are ready to compete in the global market."

D 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 (SAR)
- Curriculum handbook for each programme
- Study programme's website:
  - DPBio website https://biologi.sci-ui.id/
  - DPChem website https://www.chem.ui.ac.id
  - DPPhy and DPMat website https://physics.ui.ac.id/DPPhy
- Diploma supplement for each programme
- Alignment of the EQF Level 8 with KKNI Level 9 and PLOs of each programme
- Brochure for each programme distributed to prospective students
- Module handbook for each programme
- Discussion during the audit

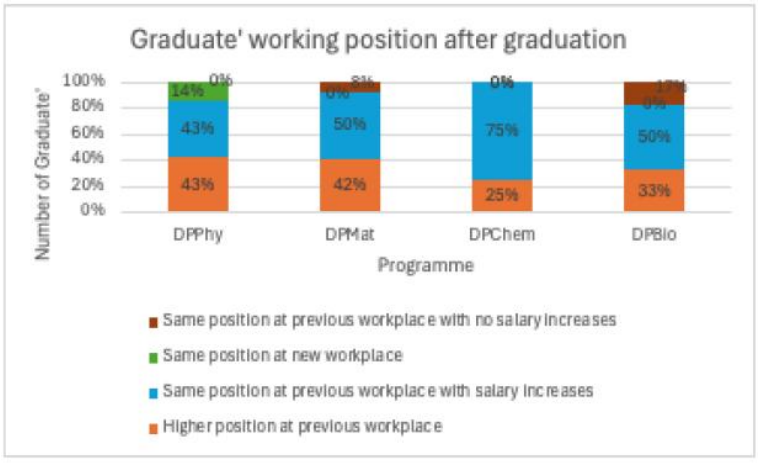
Preliminary assessment and analysis of the experts:
UI describes in the SAR the objectives and learning outcomes for each programme under review (see below **Appendix**). These are contained in the respective brochures for prospective students and on the website of the study programme as well as in the diploma supplement. In the SAR, a table is provided which shows the alignment of the EQF Level 8 with the Indonesian KKNI Level 9 and PLOs of each programme.

The program learning outcomes for all doctoral programmes are designed to develop three general skills: i) "The ability to critically, creatively, and innovatively analyse scientific problems within their field, demonstrating integrity, and formulating scientifically responsible solutions"; ii) "the ability to independently design and conduct original research that addresses critical questions within their fields using an interdisciplinary, multidisciplinary, or transdisciplinary approach, with objectivity"; and iii) "the ability to

effectively communicate and present their findings to diverse audiences, ranging from academic peers to the general public".

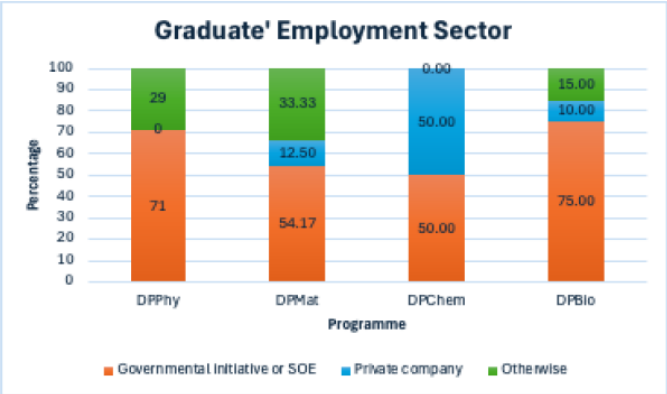
As stated by the university in the SAR, the relevance of the objectives and learning outcomes for both the labour market and society is regularly reviewed in different quality assurance processes that involves the relevant stakeholders. Data as GPA, graduation time, graduate's working position after graduation, and user satisfaction are used by the university to measure the achievements of the PLOs of its study programmes.

Data about employability of the graduates obtained from tracer study can show the relevance and achievement of the PLOs. The Indonesian government requires universities to conduct regular tracer study of alumni through Government Regulation No. 12/2012 on Higher Education. At UI, each graduate has to fill out two surveys a year after graduation as well as five years after graduation. The first survey is to obtain information about the first job search and evaluation of learning, while the second survey has an emphasis on work dynamics and its relation to competency acquisition. In the case of the programmes under review, it is important to notice that most students in the Doctoral Programmes were already working when they applied to the Doctoral Programmes. For instance, the 2019–2023 tracer study reveals that 50% of graduates from DPPhy received promotions after graduation. As following graphics to the Graduate's Working Position after the Graduation shows, meanwhile, although doctoral graduates from Materials Science and Biology remained in their current positions, approximately 50% of them received salary increases. According to these data, for example, 25–43% of doctoral graduates from all programmes received a promotion following graduation, while 43–75% of the graduates experienced salary increases.

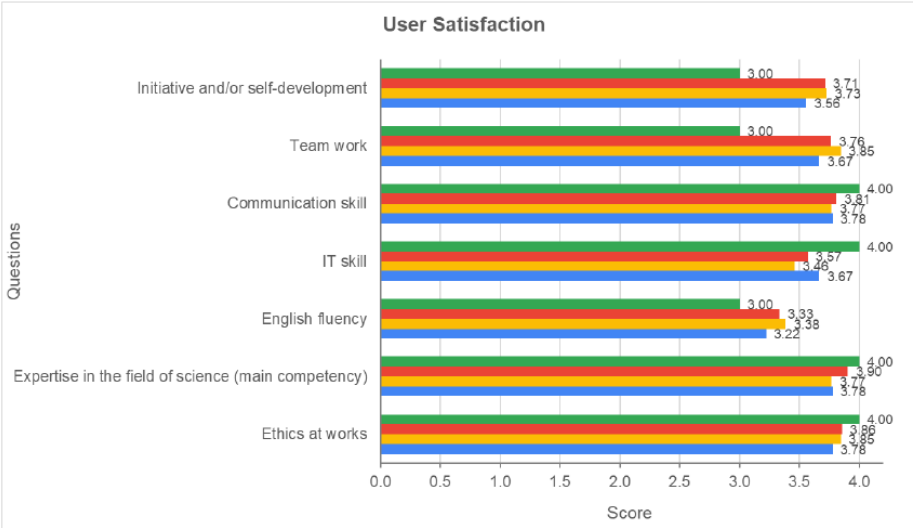


In addition, following figure illustrates the results of the tracer studies regarding graduates' job positions after completing the doctoral programmes and the sectors in which graduates were employed. They work across a range of organizations, including government agencies

or state-owned enterprises. This is highly influenced by many students who take PhD programs come from the government or SOE. Experts notice that many PhD students who are promoted by their companies come from and collaborate to improve the quality of their employees. This shows that the University of Indonesia has a strong connection line with the industrial sector to support performance in terms of research and development.



The achievement of PLO is also confirmed by data from user's satisfaction. The parameters assessed include work performance, such as ethical competence, expertise in the relevant field, teamwork, initiative and/or self-development, as well as English fluency, IT skills, and communication skills (shown in Figure 5.6.3). Satisfaction levels are categorized as poor (1.0), quite satisfied (2.0), satisfied (3.0), and very satisfied (4.0). According to the data from the employment study, the majority of users are satisfied or very satisfied with the graduates' work performance of the four doctoral programmes, as following figure shows:



During the discussion, experts paid more attention to the English fluency section which was relatively lower than other scores. As a result, the quality of English Fluency of doctoral

students from UI was considered adequate, but there was still a need for development of fluency quality, especially academic writing in international collaboration. Another thing that was also mentioned in the discussion was about the limitations of students being guided by a lecturer. Experts suggested increasing co-collaboration between lecturers so that supervision can be carried out without obstacles.

The experts ask during the discussion on-site whether both paths offered in all doctoral programmes under review (By-Course-Research and By Research) attain similar or an identical level of qualification. The programme coordinators explain that the candidate who applies for the **By-Research path** is usually already working in a research center and brings, thus, more experience and specific cases of research in the research work. In addition, it opens opportunities for researchers for further qualification. The candidates for **By-Course-Research path** are, on the other hand, mostly, recent graduates from the respective Masters programmes (By-Course-research path). The programme offers initial guidance and support that is complemented by some elective courses related to their research project topics and orientation for writing publications. A comparison of the two curricula reveals that the differences in terms of the scope and intensity of graduates' ability to pursue a research project and document their progress as part of a manuscript seems to be balanced when supervised by experienced professors. This would allow graduates from both study programmes to attain a similar level of qualification. The students decide the programme path independently in their interview admission process. However, the By-Research path requires more evidence on their strong research background experience. In the course of discussions between students and experts on the respective strengths and weaknesses of the two study programmes, the majority of students expressed a preference for the By-Research curriculum. The major drawbacks for selecting the By-Course programme that were cited by students included the higher burden due to examinations in courses that advance theory, the avoidance of time-consuming literature reviews, and the later onset of research projects. The students interviewed appreciate that they have the possibility to select a path adapted to their experience and expectations. Based on that, the experts conclude that both paths address the experience and needs of the students.

The alumni participants also appear to be very satisfied with their respective programmes and feel well prepared for their future careers. In addition, the present industry representatives highlight during the discussion the deep scientific knowledge as well as strong practical experience in laboratory work of the UI doctoral graduates from both paths employed in their companies. They are also satisfied with their skilled abilities in technology management and with strong communication skills as well as good attitude. They emphasize that they need more PhD graduates in Indonesia, especially, for working in research centers.

The experts conclude that the graduates of all programmes under review are principally qualified to continue their careers in leading research and producing high-quality research, innovation, and publication. The objectives and learning outcomes of each degree programme reflect the targeted academic qualification level and are feasible and in line with EQF Level 8. With the intended competence profile, a professional activity corresponding to the level of qualification (according to the European Qualifications Framework) can be taken up. The experts also acknowledge that the PLOs are described briefly and concisely and transparently anchored and published. Furthermore, they are harmonized across all documents (curriculum handbook, website etc.).

Moreover, the experts are of the opinion that UI implements adequate methods to measure and regularly review the relevance of the PLOs for both the labour market and society involving the relevant stakeholders.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report (SAR)
- Diploma Supplement for each programme
- Study programme's website
  - DPBio website https://biologi.sci-ui.id/
  - DPChem website https://www.chem.ui.ac.id
  - DPPhy and DPMat website https://physics.ui.ac.id/DPPhy
- Module handbook for each programme
- Discussion during the audit

Preliminary assessment and analysis of the experts:
As stated in the SAR, the name of the study programmes at UI have been issued according to the Decree of Ministry of Education, Culture, Research and Technology Number 164/E/KPT/2022.

The experts confirm that the title of the doctoral programmes under review reflect the intended objectives and learning outcomes as well as the teaching and learning content. The designation both in the original language and in English is used consistently in all relevant documents.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Study programme's Website:
  - DPBio website https://biologi.sci-ui.id/
  - DPChem website https://www.chem.ui.ac.id
  - DPPhy and DPMat website https://physics.ui.ac.id/DPPhy
- Diploma Supplement for each programme
- Alignment of the EQF Level 8 with KKNI Level 9 and PLOs of each programme
- Brochure for each programme distributed to prospective students
- Module handbook for each programme
- Rector's Regulation No 3, 2024
- List of active international cooperation
- International student mobility activities
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Content and structure of the programme

The university provides a curriculum handbook, module handbook and a table containing the correlations between modules and PLOs for each programme. As stated in the SAR, the curricula adopt an integrative design, where all modules are interconnected to meet the competencies outlined in the Programme Learning Outcomes (PLO). The modules also guide students toward research areas aligned with their interests and departmental expertise.

All doctoral programmes under review are three-year programmes (6 semesters), offered in two tracks, By-Research and By-Course-Research, both of which are credited with 158.4 ECTS (88 SKS).

The primary difference between these two programmes is the minimum requirement for each publication module. For an A grade in **By-Course-Research programme**, students need to publish their research articles in an international journal indexed in Q3 by Scopus, while the **By-Research programme** requires the publication of an international journal indexed in Q2 by Scopus to obtain an A grade.

In addition, the modules in the first two semesters are different for the two tracks. The **By-Course-Research track** consists of compulsory/elective modules in the first and second semesters, while the **By-Research track** starts with the modules Literature review 1-2.

The **DPPhy By-Course-Research track** curriculum focuses in the 1st and 2nd semester on mastering fundamental physics concepts and their applications, which serve as the foundation for conducting advanced research in subsequent semesters. It includes the modules Integrated Science and Mathematics, Philosophy of Science and Research Methodology. To enhance their understanding of cutting-edge topics, students also take the Capita Selecta in Physics modules during the 1st semester, where they are introduced to current research developments in physics.

In **DPMat,** the first and second semesters include compulsory modules on fundamental concepts of materials science and its application such as Advanced Materials Structure, Advanced Materials Properties and Performance, Integration of Science and Mathematics, Scientific Literacy, Philosophy of Science, Advanced Materials Characterization and Analysis and Advanced Thermodynamic and Kinetics of Materials. These modules enhance students' fundamental knowledge of materials science and prepare them to develop a research proposal by the end of the second semester. The DPMat provides research topics related to the fields of polymer, composite, ceramic, metal-alloy and nanomaterials in elaborating the mechanic, surface, optic, thermal, electric, magnetic and some other inter relation of that physical properties in form of solid state, bulk, powder, film, thin film, liquid/solution and gas phases supporting students' particular interests.

The **DPChem By-Course-Research track** consists of compulsory modules during the first year that form the core of the programme. These modules are totalled at 129.6 ECTS (72 SKS) and include foundational courses such as Integration of Science and Mathematics, Philosophy of Science, and Research Proposal. In addition, doctoral students in this programme are required to complete a total of 28.8 ECTS (16 SKS) of elective modules. These modules provide students with the opportunity to specialise in their chosen area of interest through modules such as photocatalysis, experimental methods of photocatalyst research, homogeneous catalysts, electrochemistry, and various other specialised topics within chemistry. Students selects elective modules with guidance from their advisors to ensure alignment with their dissertation research. The elective courses available are adjusted to the research fields related to the topics of the research projects.

The **DPBio By-Course-Research Programme** includes the modules "Integration of Mathematics and Sciences" as well as "Philosophy of Science" in the first year. Elective modules are designed within the research groups established (Microbial Systematics and Prospecting, Community Ecology and Environmental Biology, Cellular and Molecular

Mechanism in Biological System, Wildlife Biology and Sustainable Landscape, and Metabolomic and Chemical Ecology). These modules should be in accordance with the topic of the student's dissertation and are selected by students after discussing with their supervisors.

For both tracks, a requirement for starting with the doctoral dissertation is a research proposal scheduled in the second semester. The proposal has to include the dissertation topic and methodology, which should be discussed with the assigned supervisor and evaluated separately as part of the Research Proposal module. In addition, the third and fourth semester include Research progress 1-2. In the fourth semester, students are also required to present their research progress, which should be at least 70% completed, and a paper draft manuscript to be submitted by the fifth semester to an international journal. Additionally, they are expected to attain a certificate from an international conference. In the fifth and sixth semester, students will undertake dissertation examinations 1-2. Finally, in the sixth semester, students who have successfully completed all modules and requirements present their final research results during the doctoral promotion. This includes a public defence before the doctoral examination committee.

The dissertation is an individual project for each student, worth 36 ECTS (20 Indonesian credits), requiring the applicant to have completed an individual research project. Students are expected to work independently on their dissertation under the guidance of their assigned supervisor. Each student is assigned a supervisor, with a maximum of two co-supervisors. These supervisors are appointed by the programme coordinator, taking into account the relevance of their expertise to the student's dissertation topic. The doctoral thesis should be completed within four semesters. According to the regulations, the number of students supervised by each supervisor is calculated based on the student/staff ratio.

During the discussions on-site, the experts raise concerns with the programme coordinators and students about the clarity and suitability of some of the module contents included in the **By-Course-Research** programme’s first year and some elective modules across all programmes under review. These concerns are highlighted in the context of the information provided in the module handbook and the reference list, which, in the experts' opinion, did not fully align with the level of complexity expected for doctoral programmes. The programme coordinators clarify that the courses available in the first year of the By-Course-Research path include a concise introduction to review essential topics for students with a background different from their current research topic. However, the focus swiftly shifts to more in-depth subjects and current research topics through analysis of current papers. The experts learn that deepening theoretical understanding of complex topics, as taught in courses, is considered a key for becoming acquainted with the scientific method

in more intense manner and for progressing increasingly more rapid along the scientific curriculum. For instance, as illustrating examples in **DPChem** for stressing the benefit of theory courses in a curriculum of a doctoral programme, topics dealing with homogeneous or heterogeneous catalysis on one side, and fields of research dealing with analytical chemistry on the other, were outlined by academic teachers. Moreover, regarding **DPPhy**, the programme coordinators explain that the modules Capita Selecta A and B in the By-Course-Research track introduces current research topics and guide students toward research areas aligned with their interests and departmental expertise. The content of this course is different each semester, depending on the respective lecturers.

Students also explain that fundamentals are only taught at the beginning of the programme, during the first week. Following this, they will focus on new topics and current papers moving on to more advanced instruction and the development of research projects. The discussion is both profound and research-oriented. They are involved in research projects and deliver presentations. In addition, some students clearly mentioned, information provided in courses dealing with specialized topics, for example electrochemistry when conducting research in the given topic, are helpful for progressing in projects along the By-Course-research curriculum. The selection of electives is made according to the topic or the specialization or research area selected as for DPBio. Students from the By-Course-Research path generally report satisfaction with the modules and curriculum structure and find the initial two semesters as particularly beneficial in preparing them for the demands of their research projects, which require a solid foundation in the chosen topic. Strengthening applied research, according to some students, would contribute attracting students for the doctoral programs from industry. Therefore, courses or modules dealing with economy, business and entrepreneurship would add attractive aspects to the curriculum of all programmes.

Overall, the experts conclude that the curricula of all programmes under review are well structured and enable students to achieve the intended learning outcomes. The two tracks and electives offered provide opportunities for individual focus. In the module handbooks, learning outcomes for each module are clearly defined. In addition, the experts highlight that the doctoral programmes under review are very ambitious with high requirements for publication and research work.

Nevertheless, there are some important aspects to be improved. Firstly, as the content description of some modules is not detailed and in some cases the same for several modules, the experts are of the opinion that the module descriptions for all programmes under review need to be updated (see below **4.1**). In addition, according to the experts, contents related to the economy, business and entrepreneurship should be included in the programmes. In this context, experts suggest that alumni with start-ups or who are

employed in companies could be invited to deliver workshops or lecture series. This would provide a valuable opportunity for doctoral students to gain valuable hands-on experience.

Student mobility

See below Criterion **D 3**.

Periodic Review of the Curriculum

The curriculum of all programmes under review is evaluated every four years. This periodic review process, as stated in the SAR, involves input from various stakeholders, including faculty members, students, alumni, industry partners, and academic experts. The curriculum review focuses on:

- "Learning Outcomes: Ensuring that programme objectives align with evolving professional and academic requirements.
- Course Content: Updating and refining materials to reflect recent developments in the field.
- Teaching Methods: Incorporating innovative and effective instructional strategies.
- Stakeholder Feedback: Gathering insights from employers, alumni, and students to address real-world applicability and needs".

Additionally, evaluation of the PLO's achievement includes the evaluation of each Course Learning Outcomes achievement. The PLO achievements in general can be reflected in the GPA and the length of study of graduates. Furthermore, it can be obtained externally from the employability of the graduates obtained from tracer study (see above Criterion 1).

The current curricula under review for this accreditation are from 2024. The university has provided a comparison between the 2020 and 2024 curricula, in which experts can observe the changes and updates that have been made.

According to one remark raised in the session with the alumni and industrial representatives, stakeholders contribute on a different level for identifying future fields of interest, in order to direct curricula towards future-oriented fields of interest. However, the experts get the impression that alumni and industry could be stronger incorporated into the process of development of the degree programmes.

The experts confirm that all programmes under review have a curriculum that is periodically reviewed, revised, and updated in an appropriate manner. However, they are of the opinion that representatives of the industry and alumni should be stronger involved in the curricula development and integrated, as mentioned above, as guest lecturers or speakers to deliver workshops or lecture series. This would provide a valuable opportunity for doctoral students to gain valuable hands-on experience.

Criterion 1.4 Admission Requirements

Evidence:

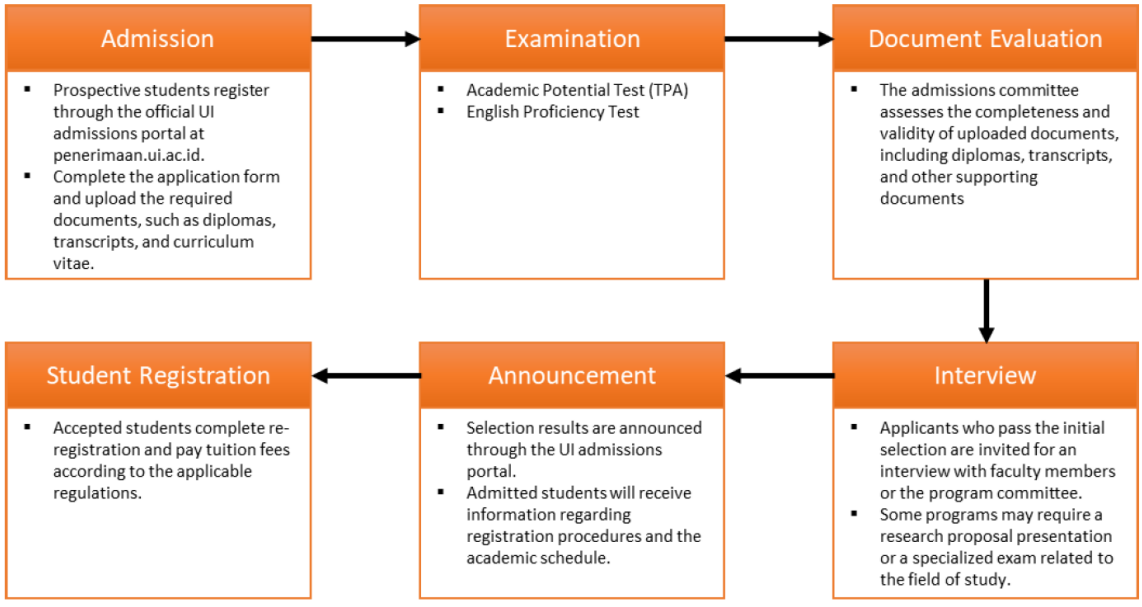
- Self-Assessment Report (SAR)
- Academic Regulations: https://sci.ui.ac.id/en/peraturan-akademik/
- Discussion during the audit

Preliminary assessment and analysis of the experts:

The University Regulation number 8/2021 regulates the admission process for doctoral programmes at UI. There are four main admission systems for doctoral studies at UI:

1. **Independent Written Test (SIMAK UI)**: This is an entrance exam organized by UI's New Student Admissions Unit (PMB). It consists of a General Potential Academic Test and an English Test. Following the exam, there is an interview to assess research experience and publications.
2. **Fast-Track Bachelor-Doctoral Programme**
3. **Fast-Track Master-Doctoral Programme**
4. **Independent Selection**

Following scheme illustrates clearly the admission procedure:



The general requirements for admission to doctoral programmes at UI are as follows:

- University Academic Potential Test (TPA) score with a minimum of 500
- Institutional TOEFL score (minimum 500) or IELTS (minimum 6) or passing the university's English Language Examination

- Minimum GPA of 3.00 (on a 0-4 scale) from the previous level of education

Furthermore, the requirements for admission differ between the two doctoral tracks. Candidates for the **By-Course-Research track** are required to have strong academic background but without significant prior research experience and scientific publications. The **By-Research track** is designed for candidates with substantial research experience who have at least two scientific publications, with at least one as first author. In addition, they are required to submit a research proposal and successfully complete an interview held after the SIMAK exam. A confirmed commitment from a prospective supervisor (promoter) is also mandatory. The final admission decision is based on the applicant's performance in the SIMAK examination and the interview, as determined in a faculty meeting. It is possible to transfer from the By-Course-Research programme to the By-Research. The latter programme represents the latest development at FMNS, with the aim of strengthening the research orientation in doctoral programmes.

The admission for international students is organized by UI's New Student Admissions Unit office. In case of foreign student requirements, they need permission from the Ministry of Education and Culture and must demonstrate Indonesian language proficiency. Diplomas from foreign universities require equivalence from the Higher Education department of the Ministry of Education and Culture.

During the on-site discussion, the experts ask about the requirements and procedures for the fast-track programmes. The university representatives explain that in order to be admitted to the Fast-Track Bachelor-Doctor Programme, students must have completed 120 credits with a minimum GPA of 3.60 at the end of the sixth semester; and English language proficiency must be at least equivalent to a TOEFL score of 50O. Following acceptance onto a doctoral programme, a bachelor's degree student is required to complete essential courses from the corresponding master's programme. The maximum duration of the Fast Track Bachelor-Doctorate is 12 semesters. To enter the Fast-Track Master-Doctorate programme, students must have completed 18 credits with a minimum GPA of 3.50 at the end of the second semester. The maximum duration of the Fast-Track Master-Doctorate is 10 semesters. The objective of the fast-track study programme is to incentivise highly qualified students who are graduating as research experts to receive a PhD from an Indonesian university.

According to the SAR, each year the Dean proposes to the Rector the capacity of each programme, taking into account the annual work and budget plan of the faculties, available resources, supporting facilities and input from the Head of Department and Head of Programme. On the basis of this quota of accepted students, the Admissions Office announces and conducts the selection of prospective students. For doctoral programmes,

the quota is approximately 15 students per year. However, it is explained that in the last three years the number of applicants for all doctoral programmes has tended to fluctuate in each semester. When it was suggested that the number of doctoral students per se should be increased, the experts learned that this proposal would require more space for laboratories and writing rooms to be added to the departments in order to meet the demands of an already existing shortage of space, as outlined by the faculty. They fully understand the situation and believe that it is a good practice to evaluate intake capacity on a regular basis.

The admission rules are published on the university's website and provide potential students with detailed information on the requirements and steps necessary to apply for admission to the programmes. As they are based on official regulations, the experts consider them to be binding and transparent. They confirm that the admission requirements support students in achieving the intended learning outcomes.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Module handbook for each programme
- Study programme's Website:
  - DPBio website https://biologi.sci-ui.id/
  - DPChem website https://www.chem.ui.ac.id
  - DPPhy and DPMat website https://physics.ui.ac.id/DPPhy
- Diploma Supplement for each programme
- Regulation Conversion Credit Unit System (SKS) to ECTS
- Discussion during the audit

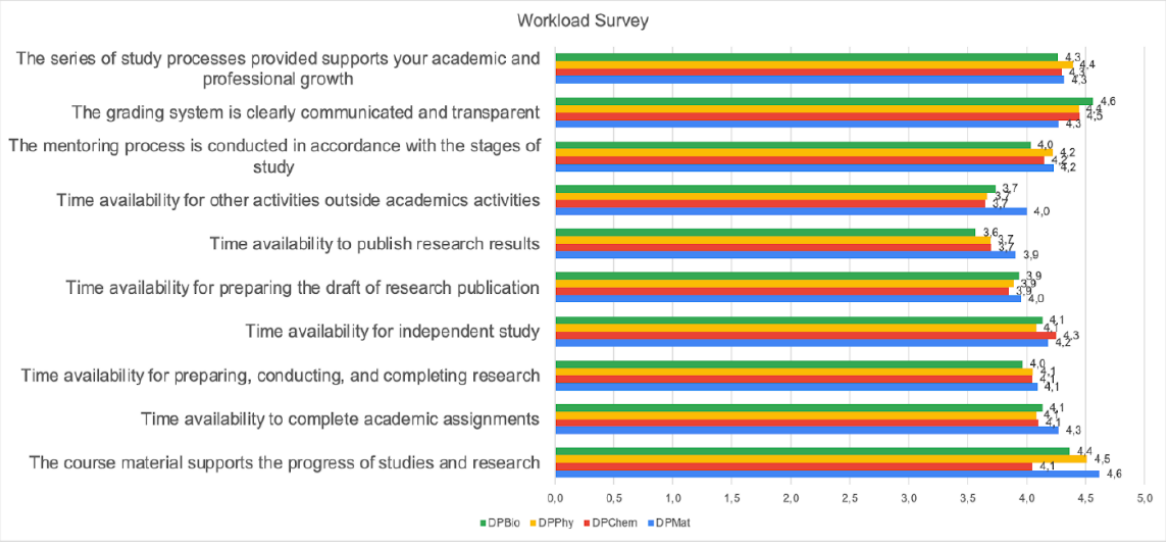
Preliminary assessment and analysis of the experts:

Doctoral programmes at the UI require 88 SKS equivalent to 158.4 ECTS for completion. As highlighted in the SAR, the total workload of academic programmes at the UI at undergraduate, masters and doctoral levels is more than 360 ECTS. Credits are awarded for each module in all programmes under review, based on students' workload. Each credit is equivalent to 1.8 ECTS, where 1 ECTS is equivalent to 25 hours per semester. The workload for students is defined as 45 hours per semester per credit (1 SKS), including all learning activities, contact hours and self-study time.

The total workload follows the national credit system standards and the regulation for conversion to ECTS. Student workload assessment is based on an estimate of the time required for various academic activities, including lectures, assignments, research and examinations. These surveys are designed to identify whether students are experiencing excessive workload pressures, and the results provide insights for required adjustments.

Based on their curriculum design, By-Research path receives more credits for similar course, for example in Scientific Publication 10 SKS will be credited for By-Research path (18 EQTs), on the other hand the By-Course Path credited for 6 SKS (10.8 EQTS). This is aligned with the higher standard on the By-Research Path which require at least Q2 Scopus Rank to get a maximum score, while By-Course path only require at least Q3 Scopus Rank journal to get maximum score. As well as set a higher standard of research qualification to obtain certain grade.

Following figure presented in the SAR illustrates the results on doctoral student workload satisfaction survey. This involved 108 respondents, representing both those enrolled in the **By-Course-Research programme** and those in the **By-Research programme**:



Based on these results, most students perceive the workload to be manageable. However, the average score for the time available for preparing drafts for research publications, publishing research results and other activities outside academia is above 3 but below 4 out of 5. Therefore, improvements have been made to the design of the 2024 curriculum and student research activities have been distributed according to the chosen academic track.

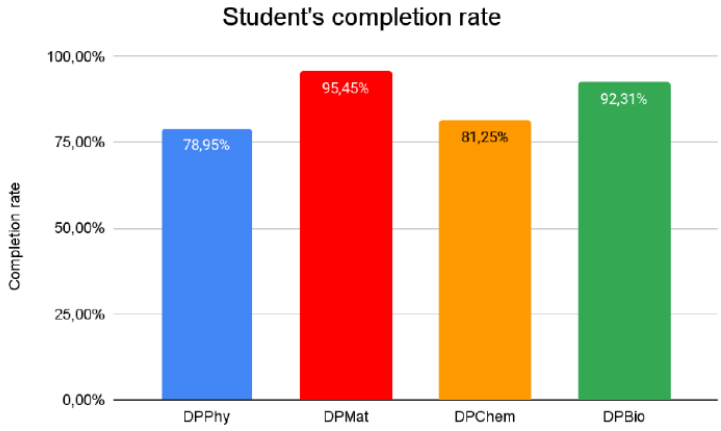
Moreover, the student's progress is monitored by an annual assessment of the number of credits that the student must pass. If the number of credits is not achieved each semester, the student will be dropped. These requirements ensure steady academic progress and

encourage students to complete their studies within the expected time frame. The following table shows the minimum number of credits that students must pass at the end of each semester:

Semester	Maximum Passes Credit (SKS)*	ECTS
2	24	43.2
4	48	86.4
6	72	129.6
8	96	172.8
10	120	216

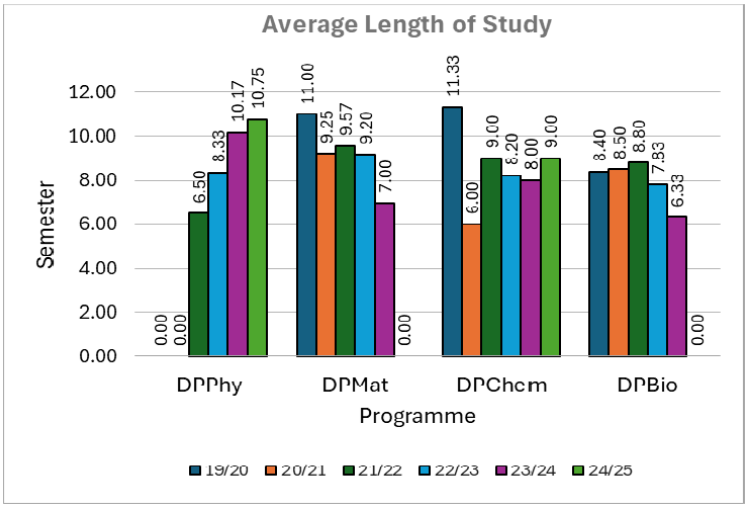
The curriculum committee is responsible for reviewing student feedback and academic performance data to ensure that the study load remains balanced across semesters. Additionally, academic advisors verify the number of credits which each student is able to take each semester.

The following figure illustrates the graduation rates for the programmes under review:



The experts note that on average, from eight students per semester, five students complete the doctoral programme in Chemistry, corresponding to a dropout rate of 38%. Upon request, programme coordinators mention personal and financial issues as reasons for a student deciding to abort his/her doctoral study. They clarify that a number of students may have been unable to complete their studies, primarily due to health concerns (in the case of one student passing away) and adjustments to scholarship programmes. Some students registered but never attended. Furthermore, students who fail to register for two consecutive semesters will be automatically recorded as "resign" in the Academic Information System.

Additionally, according to the following data provided by the UI regarding average study duration, the experts note that the majority of students take more than six semesters to complete their studies (up to 11 semesters):



As stated by UI, based on the results of the tracer study data, one factor contributing to delays in completing studies is the time required for research to finish dissertations or publications. These issues have been addressed in the new curriculum established in 2024 by structuring the dissertation and international publication to be completed over two consecutive semesters, in total 36 ECTS and 28.8 ECTS, respectively. Additionally, internal factors such as family matters and employment have influence. During the discussion on-site, the programme coordinators explain that most doctoral students are employed and are in reality not full-time students. Therefore, UI states that, in the future, they plan to implement a non-full-time/part-time student programme with a study duration and curriculum timeline that can be adjusted accordingly.

The students participating in the discussions state that the workload of the doctoral programmes under review is manageable and this depends on each student's personal situation and level of commitment. It facilitates a work-life balance and allows for personal time. They emphasise that, for those in need, UI is planning to provide a Kindergarden, allowing children to be taken care of while parents pursue doctoral studies. However, they point out that the length of study in the **By- Research programme** tends to be longer, specially, due to high requirements for publications.

The experts confirm that the credit system used by UI is based on student workload and that the workload is regularly monitored. However, given that almost half of the students participating in the discussion round during the audit are planning to graduate in the sixth semester, the experts recommend monitoring the reasons for longer study durations, especially in **DPPhy**, on a more systematic basis and, accordingly, implementing measures.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Module handbook for each programme
- Guidelines for research-based learning
- Discussion during the audit

Preliminary assessment and analysis of the experts:

As stated in the SAR, the doctoral programmes at UI adopt a student-centred and research-oriented approach to teaching. Teaching across the programmes integrates lectures, discussions, case studies, and research-based projects, with a strong emphasis on student-centred learning and research-based learning. These pedagogical approaches are designed to actively engage students in their learning, encouraging collaboration, problem-solving, and the development of original scientific work.

The curriculum is structured to provide both compulsory and elective courses, offering foundational knowledge as well as opportunities for specialisation. In the module handbook are outlined objectives, content, learning strategies, assessments, and weekly plans for each module.

As stated in the SAR, the use of the university's digital platforms—EMAS (E-Learning Management System), Zoom, MS Teams, and Google Meet—enables flexible, blended learning environments. The academic information system, SIAK-NG, supports online registration, course management, and the monitoring of student progress, including dissertation milestones. Supervisors play a pivotal role in guiding students through regular meetings, providing feedback, and fostering research skills.

Doctoral students are progressively introduced to independent research through a structured path that includes literature reviews, research proposals, progress reports, and scientific publications.

Academic staff receive ongoing professional development through training such as PEKERTI, Applied Approach (AA), and digital pedagogy workshops, which equip them to implement active learning methods effectively. The quality and effectiveness of teaching are regularly assessed through the Evaluation of Lecturers by Students (EDOM) system, allowing for continual refinement of teaching strategies.

During the audit, the experts ask about the meaning of the didactic method “active learning”. Teachers participating in on-site discussions indicate that the approach varies

according to the course, but, in general, it involves individual problem solving by students, presenting answers to teachers, and posing underlying questions to develop critical thinking. For instance, in the module entitled 'Literature Review', recent journal publications are analysed and discussed in depth in terms of what is missing and what can be done in the future.

A further topic addressed with the teaching staff is the integration of AI in the teaching process. In general, professors and lecturers advocate the use of artificial intelligence (AI) language models, particularly in instances where students might encounter challenges with wording. In accordance with scientific ethics and standards, it is essential that anyone using AI models clearly marks passages generated by a given language model and cites the software used. In the context of scientific research, the effective utilisation of tools such as ChatGPT entails a solid scientific foundation, prompting the formulation of precise questions that can subsequently be translated into answers by the language model. Some lecturers express concerns that this approach may not adequately foster critical and analytical skills. The majority of them agree that it is important that students learn how to use tools like ChatGPT responsibly and judiciously.

Experts argue that the University's ability to utilize Machine Learning is quite good in the development of research at the University of Indonesia. The adaptation of AI and Machine Learning in the study programme is clearly seen in DPPhys which has started using Machine Learning models in several papers referenced in field observation, such as the use of Machine Learning for natural disaster detection, or optimization of material formation processes.

The experts appreciate the diversity of teaching methods and believe that they ensure that the course objectives and the overall intended learning outcomes are achieved Experts highly encourage all of the Department Programs to follow up the progress on AI, to be always relevant in current progress of technology.

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

Regarding Criterion **1.1**, UI clarifies some data obtained from the users' satisfaction survey regarding English fluency. The university confirms that a number of programmes have been implemented to assist students in developing their English writing and speaking skills. The experts acknowledge these positive developments and encourage UI to continue providing support for doctoral students through such additional activities. In addition, considering that this feedback originates from stakeholders, it may be worth aligning the expectations of both students and stakeholders more explicitly. Clearer communication or a stakeholder

briefing on current initiatives and expected outcomes could help bridge this gap. Moreover, following the experts' recommendation to strengthen soft skills training for students further and to include content on the economy and entrepreneurship, UI has initiated a workshop series explicitly designed for Master's and Doctoral students. This series will be held twice a year and will provide dedicated opportunities for students to engage with relevant topics in economics, business strategy and entrepreneurship. Alumni will be invited to serve as guest lecturers or speakers. The experts appreciate these measures taken by the university and recommend further developing strategies to strengthen doctoral students' soft skills and stronger involve representatives of the industry and alumni.

In response to the expert's feedback regarding clarity and suitability of the module contents (Criterion **1.3**), UI carried out a revision of the module handbooks for all programmes and provides revised versions of these. The references lists were updated and the module descriptions improved to clearly articulate the learning outcomes, pedagogical approach, and expected level of engagement. The experts reviewed the updated versions of these documents and are of the opinion that the present version of the module handbooks poses a step into the right direction. However, there are still some issues that need to be improved. For instance, the modules Research Progress 1 and 2 still seek achieving identical learning outcomes as goal and the examination forms are not yet sufficiently specific. The reading lists have been updated and specified, but are not yet state of the art. Therefore, the experts are of the opinion that the review process of the module handbooks needs to be continued and regular updates need to be maintained.

With regard to workload and monitoring reasons for longer study durations (Criterion **1.5**), especially in DPPhy, UI responses that several measures were taken in this regard such as even distribution of elective modules across all semesters for more balanced workload and comparative analysis of the old curriculum with the new to understand the impact of the changes and identify specific areas where the new structure is more effective in promoting the timely completion of studies. With regard to the prolonged study duration in the DPhys program, UI provides data showing an improvement in the average study duration to 7.5 semesters in the latest cohort. This suggests that the measures taken are beginning to show effect. The faculty has attributed the extended study durations in the DPhys programme to factors such as extensive data collection, off-campus requirements, and the emotional impact of the COVID-19 pandemic. While COVID is no longer a prevailing crisis, the experts observe that the statistical data continues to show a trend of longer study durations across multiple cohorts. They conclude that it may be helpful to conduct a more thorough review to identify persistent structural or procedural challenges in the programme.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Rector's decree about technical guidelines for writing final assignments
- Guidelines for facilities and accessibility for persons with disabilities
- Rector's Decree on Code of Ethics & Code of Conduct Module handbook for each programme
- Study programme's Website:
  - DPBio website https://biologi.sci-ui.id/
  - DPChem website https://www.chem.ui.ac.id
  - DPPhy and DPMat website https://physics.ui.ac.id/DPPhy
- Guidelines for Handling Student Appeals
- Requirements for Similarity Checking for Undergraduate Thesis, Thesis, and Dissertation Manuscripts
- Module contracts and examination rubrics
- Samples of examinations and dissertations
- Discussion during the audit

Preliminary assessment and analysis of the experts:
As stated in the SAR, the majority of modules in the doctoral programmes at UI are assessed through individual or group projects rather than written tests. Project evaluations can be conducted via oral presentations or project reports.

The university provides following table containing an overview of the assessment types, examiners, and assessment frequency:

Types of Assessment	Assessor/Examiner	Frequency
BY-COURSE-RESEARCH PROGRAM		
1. Midterm exam	Lecturer	1
2. Final exam	Lecturer	1
3. Assignment		
• **Oral presentation**	Lecturer and peer students	1-8
• **Literature review**	Lecturer	
• **Individual project**	Lecturer	
• **Group project**	Lecturer and/or peer students	
BY-RESEARCH PROGRAM		
Literature Review	Supervisor and Examiners	2
Oral Presentation	Supervisor and Examiners	6-8
Reports (written)	Supervisor and Examiners	1-2

Types of exams as well as study and examination requirements are specified for each module in the module handbook. Furthermore, module contracts are used for each course. In order to ensure that exam questions are aligned with the module's learning outcomes, the head of the programme and an appointed evaluation team (TPMA, academic quality assurance team) assess the questions submitted by each lecturer.

Final grade is represented using letter grades: A, A-, B+, B, B-, C+, C, D, and E. To pass a module, a student must achieve at least a grade of C. For the dissertation, the minimum passing grade is B. The conversion from numerical values to letter grades is outlined as follows:

Score	Grade	Weight
$85-100$	A	4.00
$80-85$	$A-$	3.70
$75-80$	$B+$	3.30
$70-75$	B	3.00
$65-70$	$B-$	2.70
$60-65$	$C+$	2.30
$55-60$	C	2.00
$40-55$	D	1.00
$0-40$	E	0.00

The final grade of the dissertation consists of the grades awarded for each of the following stages: Research Proposal, Research Progress 1, Research Progress 2, Dissertation Examination 1, Dissertation Examination 2, and Doctoral Promotion. The percentage weight for the dissertation and defence varies at each stage.

The dissertation examination is held in closed session and is chaired by a chairperson chosen from among the examiners. The exam committee is composed by the promoter and co-promoter; at least two examiners; and at least one examiner from outside the university. The total duration of the examination is a maximum of 150 minutes. It is divided into two parts: Dissertation Examination 1 and Dissertation Examination 2 (each worth 10

credits or 18 ECTS credits), which are assessed on the basis of a dissertation (67%) and a defence (33%). The examination consists of a presentation by the student and a question-and-answer session.

Doctoral students are considered to have passed the final examination if they achieve a minimum grade of B. After passing the dissertation exam, students proceed to the doctoral promotion exam, which is worth 4 credits (7.2 ECTS credits) and must be approved by the promotion team and all examiners. It determines the final decision on the doctoral candidate's graduation. As the final stage of the doctoral degree, the dissertation (50%) and the defence (50%) are equally weighted. The assessment focuses on the substantive content of the research, the presentation of the research results, the scientific competence, and the candidate's discussion attitude and scientific insight during the defence. Overall, the final grade for the doctoral research process is determined by both the quality of the dissertation and the candidate's performance at the defence. A similarity check must be conducted before submitting the doctoral dissertation. Grades are assigned according to faculty guidelines, with supervisors contributing 60% and examiners contributing 40% of the final grade.

Doctoral students conducting research at partner universities abroad are subject to the institutions' regulations. The credit transfer team and programme heads are responsible for checking that content and achievements match. In doctoral programmes, students engaged in external learning activities (primarily joint research) are required to adhere to the university's evaluation process, encompassing outputs, dissertation defences and other pertinent assessments. If an exam is taken while abroad, online attendance is permitted, except for the doctoral dissertation defence, which requires physical presence. However, external examiners may participate remotely in a hybrid format.

According to the SAR, students in both the By-Course-Research and By-Research doctoral programmes will be dismissed in the following cases:

- Failure to achieve at least a B grade in 10 credits of structured courses or a B grade in periodic seminars during the first two semesters.
- Failure to achieve at least a B grade in the research proposal exam (or its equivalent) during the first four semesters.
- Failure to complete 44 credits of the total learning load during the first eight semesters.
- Failure to complete 66% of the total learning load during the first 10 semesters.
- Failure to complete both administrative and academic registration for two consecutive semesters.

In exceptional cases, such as illness or other unusual circumstances, one opportunity per student is granted for make-up exams. Supporting documentation from a qualified medical professional or relevant authorities will be required. In cases of prolonged illness or extraordinary circumstances, a leave of absence for a maximum of two semesters is permitted, and the student will be classified as inactive.

Doctoral dissertation and defence

In order to graduate from the doctoral programme, a dissertation is mandatory. The dissertation is to be prepared under the guidance and evaluation of a supervisor who must hold a doctoral degree, have a minimum academic position of Associate Professor, expertise relevant to the final project topic and at least one scientific paper in a national journal indexed by the Science and Technology Index (SINTA) or a reputable international journal, or another recognised scholarly work as determined by the Dean/Director of the School in addition to. Co-supervisors may be appointed to assist the supervisor, working collaboratively as a team, either from Indonesia or internationally. These must be either permanent or non-permanent lecturers and are required to hold a doctoral degree with an academic position of at least assistant professor or its equivalent and must also have expertise relevant to the final project topic.

The doctoral promotion is divided into two segments: 20 minutes for the student's presentation and up to 100 minutes for discussion time. The doctoral promotion committee consists of the promoter and co-promoter; at least three examiners; and at least one examiner from outside the university. The examiner is the examiner from the Research Progress Examination with one additional as the chair exam. The chair of the examination committee must be one of the examiners, excluding the promoter/co-promoter and the external examiner. The examination committee for the doctoral promotion defence is preferably composed of members from the Research Proposal and/or the Research Progress and Dissertation Examination Committee.

The experts examine samples of examinations and dissertations submitted by the programmes under review. According to them, a significant fraction of dissertations are of a very high scientific standard and show that students are able to conduct innovative research work. However, they are of the opinion that an extended English abstract needs to be included in the dissertations.

The experts also consider that the number and distribution of examinations ensure an appropriate workload and sufficient time for preparation. They conclude that the examinations rules are transparent and clear. Based on students' feedback, the examination load is adequate, and a suitable monitoring system is established to review the achievement of the learning objectives.

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

In its statement, UI explains that graduates are required to provide an abstract in both Bahasa Indonesia and English in the dissertation draft, but not in the final version, since the dissertations are not intended for public access. In accordance with Rector's Decree No. 2413 of 2017, students must prepare a separate extended abstract and upload it to the UI Library repository. Upon approval from their supervisor, graduates may choose whether their extended abstract or short manuscript is made publicly accessible or kept restricted due to plans for future publication. Currently, UI plans to make it mandatory for FMIPA students to write their extended abstracts in English. To support this, UI provides an internal memo (No. ND-1033/UN2.F3.D/PDP/2025) from the Dean of the Faculty. The experts appreciate these efforts made by the faculty and highlight that having extended English abstracts will help students share their work more widely and opens opportunities for collaboration and recognition. As these measures have not yet been implemented, the experts conclude that an extended English abstract must be included in the doctoral thesis as a standard requirement.

Regarding dissertations see also below **D1**.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report (SAR)
- Staff handbook for each programme
- National und university's regulations regarding lecturers' recruitment
- Training List of Faculty Staff
- Data and list for staff Mobility
- Research profiles of each Department in FMNS: https://scholar.ui.ac.id/en/organisations/faculty-of-mathematics-and-natural-sciences
- List of Research Funding by Faculty Staff 2022-2024
- List of Selected Publications by Faculty Staff
- Study programme's Website:
  - DPBio website https://biologi.sci-ui.id/
  - DPChem website https://www.chem.ui.ac.id
  - DPPhy and DPMat website https://physics.ui.ac.id/DPPhy
- Curriculum Handbook for each programme
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The university provides a detailed staff handbook for each study programme which is published on the website as well as statistical data about the qualification and research activities of the staff of the faculty. In addition, the numbers of staff recruited and retired from 2019 to 2024, as well as projections for 2025-2027, are presented.

DPPhy currently has 21 academic staff, of whom 7 are professors, 5 associate professors, 8 assistant professors and one lecturer. In addition, 17 persons are support staff. **DPMat** has 8 academic staff, including 4 professors, 2 associate professors and 3 lecturers. Additionally, the university point out that, recently, two new members of staff have been recruited. **DPBio** has 7 professors, 10 associate professors and 7 assistant professors, as well as 14 administrative and laboratory support staff. **DPChem** has 8 professors, 5 associate professors, 5 assistant professors and 2 lecturers, 9 laboratory staff and 6 administrative and technical staff.

As an autonomous university and following the corresponding regulations, the recruitment of academic staff is open at UI to all candidates, regardless of alma mater or gender. Both genders have the same opportunities to join the FMNS UI staff. All academic staff involved in teaching and supervising research in the doctoral programme must hold at least the rank of associate professor. One key factor in determining the number of staff to be recruited is the number of retirements. Each department submits a proposal for new staff hires, which is then reviewed by the faculty and forwarded to the university level.

The ratio of academic staff to students in FMNS showed in following tables meets both the MoECRT regulations and UI's AIA standards:

Year	DPPhy			DPMat		
	Number of staff	Number of active students	Staff-to-Student Ratio	Number of staff	Number of active students	Staff-to-Student Ratio
2019	20	229	1:11	8	65	1:8
2020	20	188	1:9	8	65	1:8
2021	19	142	1:7	8	57	1:7
2022	20	149	1:7	7	52	1:7
2023	21	168	1:8	7	52	1:7
2024	21	156	1:7	7	50	1:7

Year	DPBio			DPChem		
	Number of staff	Number of active students	Staff-to-Student Ratio	Number of staff	Number of active students	Staff-to-Student Ratio
2019	16	36	1 : 2	20	124	1:6
2020	18	46	1 : 3	20	121	1:6
2021	21	59	1 : 3	20	116	1:5
2022	23	64	1 : 3	20	97	1:4
2023	25	74	1 : 3	20	103	1:5
2024	27	82	1 : 3	19	107	1:5

In terms of staff development, UI offers various annual didactic training programmes for academic staff, organised by the Directorate of Academic and Teaching Development, covering topics such as Active Learning in Higher Education, Learning Management Systems, English as a Medium of Instruction, academic counselling, academic writing, student assessment, student counselling, and e-learning. A list of academic staff who have participated in these training programmes shows that many lecturers take advantage of these opportunities.

Academic staff is supported by UI to participate in research collaborations and scientific conferences abroad. Faculty staff have participated in research mobility to various

countries, including the UK, Japan, Germany, Canada, the USA, Australia, Austria, South Africa, Brazil, China, the Czech Republic, Hungary, and more. In addition, visiting professors are also invited to UI. For international research collaborations, there are also internal UI grants and others provided by the government and international organisations. Academic staff is also encouraged to participate in various conferences, seminars, and scientific meetings. In addition to attending external scientific events, the faculty also organizes its own annual scientific meetings to facilitate the dissemination of research outcomes. These events include the Life and Environmental Sciences Academics Forum (LEAF), International Science and Mathematics Academics Research Talks (ISMART), International Symposium on the Current Progress of Mathematics and Science (ISCPMS), and the International Symposium on the Current Progress of Functional Materials (ISCPFM).

During the on-site discussions, the university management highlight the positive aspects of UI's promotion opportunities for lecturers aspiring to become professors. Promotion for younger staff is based on key performance indicators based on the tridharma, such as evaluating lectures, successfully conducting research and community services. They are then ranked by the faculty and considered for promotion to more demanding positions every five years.

The teaching staff participants appear to be very satisfied with the support provided to them by the university in terms of research and the development of their professional and didactic skills. The training in the field of online teaching is also found to be of great benefit. In later phases of their careers, lecturers and professors increasingly rely on opportunities resulting from joint projects to develop their careers. These opportunities may include roles such as visiting professor or guest lecturer. In addition, there are several offers for young staff to develop their careers, including research grants for young women scientists.

To assess whether the qualifications of academic staff and the relevance of subject-specific expertise contribute to achieving student learning goals, an evaluation is conducted at the end of each semester through the Academic Staff Evaluation (EDOM). In this evaluation, students provide feedback on various aspects, including course content, achievement of learning outcomes, assessment methods, teaching techniques, and overall teaching effectiveness. This regular evaluation process allows lecturers to receive constructive feedback on areas for improvement (see below Criterion 5).

In conclusion, the experts confirm that the composition and academic orientation of the teaching staff are appropriate for the successful implementation and sustainability of the two programmes under review. The university and the faculty support their staff and provide adequate opportunities for professional and pedagogical development.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Student Handbook for doctoral programmes
- Agreement letter supervisor-student
- FMIPA Collaborations in 2022-2024
- Discussion during the audit

Discussion during the audit Preliminary assessment and analysis of the experts:
As stated by UI, each student is assigned an academic advisor to provide support throughout their studies. In the doctoral programmes, this advisor also serves as the student's research supervisor. The supervisor's role encompasses guiding students in the design of their research projects, evaluating their progress, and offering advice and solutions to any challenges that arise. Furthermore, they provide guidance to students in selecting courses and research areas that align with their interests. Student performance is monitored on a regular basis throughout the academic year. Regarding supervision and assessment see below **D 4**.

According to the SAR, all programmes under review have a dedicated support staff team assigned to assist with various essential activities such as administration, cleaning and laboratory and technical assistance. Laboratory personnel assists with equipment maintenance, ensuring safety protocols adhered to and supporting experiment preparation. This enables the labs to function smoothly and efficiently.

Before starting with their studies, all doctoral students at UI participate in mandatory orientation activities which introduce students to both academic and non-academic aspects of university life. It covers the curriculum, academic regulations, teaching methods, research and publication ethics, and available support services as well as campus facilities, including ICT tools, library access (on-site and remote), and research infrastructure.

In addition, UI highlight that students have access to various scholarship schemes funded by the university, government ministries, or their employing institutions. Health and wellbeing services include a university clinic, mental health support, and hospital services. UI also ensures accessibility for students with disabilities.

During the on-site discussion, students express their satisfaction with the support and assistance offered by the university, faculty and, especially, by their teachers and

supervisors. They meet supervisors on a regular basis (at least once per semester), for discussing progress attained in the preceding period.

The experts note that students respect and honour their teachers, and feel obliged to contribute to maintaining this excellent relationship. The auditors believe that the support system helps students to achieve the intended learning outcomes and to complete their studies successfully and without delay. Students are well informed about the services available to them.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Laboratory Facilities List for each department
- Discussion during the audit

Preliminary assessment and analysis of the experts:
As stated in the SAR, the university's funding sources include government support, donations from society, tuition fees, the faculty specialized work unit (UKK), Ventura, revenue-generating partnerships, and societal contributions. Each faculty at UI is required to submit its annual budget proposal to the university by October of the preceding year which is reviewed by Directorate of Finance and the Central Administration Office.

Approximately 45% of the faculty funding is allocated to support academic activities, such as teaching assistance, invited professors, curriculum development, and thesis supervision. Around 30% of the budget is designated for operating both the education and research laboratories, including the procurement of equipment and materials. The remaining funds are used to increase human resources, maintain building facilities, support student association activities, and provide materials for administrative purposes.

The campus comprises 12 buildings spread over approximately 11 hectares of land, including six department buildings, one integrated lecture building, two specialised laboratories (a basic science laboratory and a multidisciplinary integrated laboratory), student facilities, and the faculty's main administrative building. There are also a research centre, a multidisciplinary building, a cafeteria, and a prayer room.

Universitas Indonesia offers integrated hotspots, unlimited cloud storage, unlimited email storage, and EduRoam integration. The e-learning management system, based on Moodle, is mobile-friendly and integrates with Cyber Campus, allowing both academic staff and

students to automatically create accounts for access and content development. Additionally, UI provides services such as Journal Remote Access, Student Apps, Office 365, Microsoft Azure, and Google Suite Integration.

The university's central library occupies a building area of 33,000 m² and consists of 8 floors, with the first four floors dedicated to library collections, while the upper floors (5th-8th) house meeting rooms and an auditorium. The university subscribes to several prominent scientific and academic journal databases, such as Science Direct, Springer Link, Sage, SciVal, Taylor & Francis, Wiley Online, Cambridge Core, and PubMed.

For doctoral research activities, UI offers access to the Integrated Laboratory and Research Center, which features extensive instrumentation, including a 500 MHz Nuclear Magnetic Resonance (NMR) spectrometer. Some equipment is also available in the Science and Technopark Universitas Indonesia (STPUI).

During the on-site visit, the experts inspect the university's facilities, library, computer rooms and several laboratories. They visit among others the Center of Excellent IBRC, Universitas Indonesia's Integrated Laboratory and Research Center (ILRC) which features extensive instrumentation, including a 500 MHz Nuclear Magnetic Resonance (NMR) spectrometer and, particularly, the research laboratories in each of the subjects under review. In the Department of Biology (**DPBio**), tools like the DNA Sequencer, Real Time PCR, UV-Vis spectrophotometer (Nanodrop), Laminar-Flow, Transmission-Electron-Microscope and the DNA/RNA UV-Cleaner Box enable precise genetic and molecular studies, while the UV-Vis Spectrophotometer and Stereomicroscope allow for detailed analysis of biological samples. The Department of Chemistry (**DPChem**) features advanced analytical equipment such as the Autosampler UHPLC for high-performance liquid chromatography, rotary evaporators for substance purification, and MIDI Gas Chromatographs for separating complex mixtures. For competing with groups operating on international standards, advancing of equipment and facilities, according to the peers' assessment should be considered by UI. In chemistry departments, commonly walk-on NMR-instruments exist for being operated by PhD-students. The Department of Physics (**DPPhy**) is outfitted with precision instruments, including light microscopes with CCD cameras for high-resolution imaging, high-speed refrigerated centrifuges for material separation, and ultrasonic cleaning baths for maintaining equipment integrity. These facilities collectively empower researchers to explore interdisciplinary scientific frontiers with accuracy and efficiency.

Students interviewed are satisfied with the campus and facilities. However, they are of the opinion that more licences to access international journals are required (e.g. in the areas of seismology, general chemistry, life-sciences). Furthermore, the teaching staff point out that more space in laboratories is required to work and conduct experiments adequately.

Alumni have the impression, cooperating by, for instance, sharing laboratory space from both sides, would contribute to strengthening applied research, as well as cooperation between research institutes, industry, and UI.

The experts conclude that UI has secure funding and reliable financial planning. Furthermore, UI highlights excellent campus-infrastructure, including a substantial green campus and adequate facilities. The university library is well-equipped with a wide range of facilities, including work individual rooms for doctoral students, and offers a welcoming atmosphere. Furthermore, the experts acknowledge the existence of numerous ongoing collaborative initiatives with internationally renowned universities and institutions. Nevertheless, based on the visit and the feedback of the different stakeholders, for competing with groups operating on international standards, advancing of equipment and facilities, according to the experts' assessment, should be considered by UI. In this context, the experts suggest that in order to improve equipment for conducting research, UI should invest more in shared facilities or large devices to be shared for research proposals. In addition, renewing equipment and expanding workspace in fume hoods in teaching laboratories for students are required, for meeting demands of general safety regulations. Similarly, international standards of safety in the physics and chemistry labs need to be followed (e.g. vent in Biophysics and chemistry labs or for working with nanomaterials, in terms of PPE).

In addition, books, in printed or/and electronic versions, need to be present in newer issues, and higher diversity – either in the library, or in research groups. Although existing, access to scientific literature seems to pose a bottleneck for retrieving information from databases and from electronic journals. For the sake of quality, depth and study progress, the university should evaluate the actual need for increasing available number of respective licenses, for not limiting progress due to accessibility to existing knowledge.

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

Regarding modernization of the labs equipment, UI emphasizes that several laboratories have been modernizing implementing international safety standards, such as the installation of emergency safety showers, proper chemical and waste management systems, secure gas cylinder storage and handling in chemistry laboratories. Additionally, it is explained that the sample preparation for nanomaterial and biophysics laboratories is performed in the chemical physics laboratory which has been certified as a safety laboratory from unit safety of university. The activities in nanomaterial and biophysics are to measure the dry sample with apparatus in the laboratories. This laboratory is also facilitated with vent and other safety aspects. Concerning the fume hood availability and

laboratory space in the teaching laboratories of the Department of Chemistry, UI provides following response:

"At present, we have three undergraduate teaching laboratories, and each of them is equipped with two fume hoods. To minimize overcrowding and avoid long queues during their use, we organize parallel classes for laboratory courses with staggered schedules. Additionally, not all modules in the undergraduate practical courses require experiments to be conducted under a fume hood, which helps reduce demand at any one time. Nevertheless, we take the reviewer's observation seriously. We are considering future improvements, including possible renovation and procurement of additional fume hoods, depending on university policy on space availability and funding opportunities".

Furthermore, with regard to the need to expand shared facilities, UI highlights the development of the Integrated Laboratory and Research Centre which provides ample space for research activities and is designed to be accessible for students from various faculties, thereby promoting interdisciplinary collaboration and optimising the use of existing instrumentation. Currently, there are 14, 11, 15 and 28 laboratories/institutions that are engaged in collaborative research with the Doctoral programme in Chemistry, Physics, Materials Science, and Biology, respectively. The experts acknowledge the efforts made and the strong collaborative network in place. They are satisfied with the safety conditions in the nanomaterial lab as well as the biophysics lab. In addition, the space available in the research labs matches with international standards. Chemicals are labelled appropriately and stored in specialized boards. Separated rooms from laboratory space for writing reports, for resting, and for generating new ideas are available. Much more restricted is laboratory space in undergraduate laboratories. However, as UI correctly mentioned, undergraduate programmes were not under review during the visit. The experts are of the opinion that the department and the researchers can function and rely on equipment shared among the different departments.

UI also addresses the issue regarding access to up-to-date and diverse scientific literature and explains that extensive access to a wide array of e-resources and databases is in place. All students and academic staff have institutional access to leading platforms such as Nature, ProQuest, Elsevier, SAGE Journals, Taylor & Francis, AIP, and APS, among others. These subscriptions are regularly reviewed and updated to ensure the availability of current and relevant publications. The university is exploring the possibility of expanding access by increasing the number of licenses or subscriptions, particularly for high-demand databases, to prevent access limitations that may hinder academic progress and the quality of research and learning. The experts acknowledge these explanations and encourage UI to continue expanding the licenses for access to international journals.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Self-Assessment Report (SAR)
- Module handbook for each programme:
  - DPPhy: https://physics.ui.ac.id/dpphy/
  - DPMat: https://physics.ui.ac.id/dpmat/
  - DPChem: https://chem.ui.ac.id/doctoral-program
  - DPBio: https://biologi.sci-ui.id/program-doktor
- Discussion during the audit

Preliminary assessment and analysis of the experts:
UI provides module handbooks for each doctoral programme under review which are available to all lecturers, students, and other stakeholders on the website of the respective department as well as through the Learning Management System (LMS) EMAS and the module contract. The module descriptions are created by the lecturers for their subjects. The modules are reviewed and updated annually in internal meetings. According to the curriculum structure, the modules are classified into compulsory and elective. The module handbook contains following information: module designation, semester(s) in which the module is taught, person responsible for the module, language, relation to curriculum, teaching methods, workload, credit points, required and recommended prerequisites for joining the module, module objectives/intended learning outcomes, course descriptions, examination forms, study and examination requirements, and reading list.

After reviewing the module handbook for each area, the experts agree that the module handbooks should include more specialised content descriptions. A revision and update of the module handbooks is required according to the quality standards for doctoral level, particularly for **DPChem**, where all the chemistry modules seem to lack information on content. For instance, the responsible persons are specified in the fewest modules, and the reading lists appear to be not updated. It is frequently not possible to deduce the conciseness of the examination methods mentioned for theory modules, given the comparatively little specific information on intended learning outcomes. A significant proportion of the intended learning outcomes outlined in the module descriptions relate to the personal development of students, i.e. soft skills. Furthermore, some module descriptions in the chemistry curriculum are identical (e.g. Scientific Publication 1 and 2;

International Publication 1 and 2). It should also be clear in the module handbook which language the course is taught in (English or Indonesian). The experts also remark accurate documentation of the appropriate level of qualification requires a revision of module descriptions. This revision should include an outline of the content, as well as a specification of the intended learning outcomes in a sufficiently precise manner.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report (SAR)
- Samples of Diploma supplement for each programme
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Students who fulfil all administrative requirements after graduation obtain Diploma, Transcript, and Diploma Supplement. The Diploma contains details about the graduate's identity, the academic title earned, the study programme, the name and signature of the Rector, the date of issuance, graduation date, student number, diploma number, signature, and a photograph of the graduate. The Academic Transcript includes information about the student's identity, prior education, education level, study programme, specialization, a list of courses taken with corresponding grades, total required and earned credits, GPA, title of the final assignment, certificate number, and graduation year. The Diploma Supplement provides additional information about learning experiences not included in the Transcript and is issued in both Indonesian and English languages. This document outlines the students' qualifications and achievements within the educational system and is completed by graduates for verification at the faculty level.

On the basis of samples of these documents, the experts confirm that students on the programmes assessed receive a Diploma Supplement in Indonesia and English and that it contains the required information. However, the experts take note that the diploma supplements of all programmes under review do not contain information of the student's GPA relative to the cohort. The experts are of the opinion that the GPA distribution of graduates needs to be added in the diploma supplement to ensure fair transfer and recognition of grades of mobile students.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report (SAR)
- Faculty's Website: https://sci.ui.ac.id/en/pedoman-akademik/
- Rector Decree No. 3/2024 about doctoral programme implementation
- Student handbook Doctoral Programme, FMIPA UI
- Code of Ethics and Code of Conduct
- Guidelines for Resolving Violations of the Ethics and Conduct Code
- Sample of module contract
- Discussions during the audit

Preliminary assessment and analysis of the experts:

As explained in the SAR, all rules and regulations regarding the code of conduct and responsibility of students as well as lecturers and academic staff are established on many regulation levels, from national regulation, university statutes and guidelines, faculty's rules and guidelines. These regulations are published on the faculty's website and are therefore available to all stakeholders.

Furthermore, a module contract provided by the lecturers can be accessed by students via the University Learning Management System. It outlines essential components of each course, such as assessment criteria, the weight of different types of assessments, lecture materials, and schedules for the semester. It also includes essential rules regarding ethics in lectures, ensuring that students are aware of the standards expected in their academic conduct.

The experts confirm that the rights and obligations of both UI and the students are clearly defined and binding. The students interviewed seem to be satisfied with the website and the academic intranet, confirming that all the information they required is available.

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

UI carried out a revision of the module handbooks for all programmes and provides revised versions of these (see above Criterion **1**). The references lists were updated and the module descriptions improved to clearly articulate the learning outcomes, pedagogical approach, and expected level of engagement. The experts reviewed the updated versions of these documents and are of the opinion that the present version of the module handbooks poses a step into the right direction. However, there are still some issues that need to be

improved. For instance, the modules Research Progress 1 and 2 still seek achieving identical learning outcomes as goal and the examination forms are not yet sufficiently specific. The reading lists have been updated and specified, but are not yet state of the art. Therefore, the experts are of the opinion that the review process of the module handbooks needs to be continued.

With regard to the Diploma Supplement (Criterion **4.2**), UI states that a request have already be formally submitted to the university (Vice Rector) to include information of the student's GPA relative to the cohort in future Diploma Supplements. As evidence, UI provides an internal memo (No. ND-1114/UN2.F3.D/OTL/2025). As these measures have not yet been implemented, the experts conclude that the GPA distribution of graduates needs to be added in the diploma supplement of all programmes under review to ensure fair transfer and recognition of grades of mobile students.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

- Self-Assessment Report (SAR)
- Guidelines for UI Internal Quality Assurance System
- Sample EDOM (Questionnaire on Lecturer Evaluation by Students)
- Sample EMPIRIS 2023-2024 (Questionnaire on Research and Teaching Facility Evaluation)
- Results of surveys
- Statistical data about the progress of studies
- Discussion during the audit

Preliminary assessment and analysis of the experts:
UI has several monitoring and quality assurance procedures in place to review and develop its programmes which is implemented both internally and externally. The external quality assurance system is carried out nationally through the National Accreditation Board for Higher Education (BAN-PT). Since 2021, according to the decree of the Minister of Education, Culture, Research, and Technology of the Republic of Indonesia no. 186/M/2021, the national accreditation for Study Programs at FMNS has been transferred to the Independent Accreditation Institute for Natural and Formal Sciences (Lembaga Akreditasi Mandiri Sains Alam dan Ilmu Formal – LAMSAMA). The national accreditation status is updated every five years. Currently, DPChem, DPMat, and DPBio have an "Excellent" status and DPPhy earned a "Good" accreditation status.

As stated in the SAR, the quality assurance system at UI is organized at the university level by the Board of Academy Quality Assurance (BPMA) which is responsible for the planning, implementation, monitoring, and evaluation of academic quality assurance at UI. BPMA is assisted by the Academic Quality Assurance Unit (UPMA) at the faculty level, and Academic Quality Assurance Team (TPMA) at the Departmental level. BPMA has implemented a quality management system and obtained ISO 9001:2008 certificate.

Regarding Internal Quality Assurance, several internal evaluations are conducted. Following table describes each tool:

Tools	Description	Period and Subject	System Link	Follow-up
EDOM (Lecturer Evaluation by student)	An instrument to evaluate the performance of lecturers in the learning process by students, scale 1 – 6	Semesterly for all module	https://edom.ui.ac.id/	The assignment of lecturers
MEP (Course Monitoring and Evaluation)	An internal formative evaluation in the on-going semester to ensure the course goes as planned (PDCA in course level).	yearly for fandomly selected undergraduate and master courses (about 10-15% of courses for each faculty)	https://bit.ly/UIMEP2024	Improvement of courses
EMPIRIS (Research and teaching facility evaluation by doctoral students)	An instrument to evaluate the research and teaching facilities initially by doctoral students and lately also for master by-research student each semester.	Semesterly for Doctoral students and master by-research student	https://bit.ly/empiris-new	Improvement of research, supervising, and teaching/research facilities
EVISEM (End-of-Semester Internal Evaluation)	Instruments to determine the quality of achievements by the study programmes within one semester, scale 1 – 4.	Semesterly for all study programme	https://sipma.ui.ac.id/	Continuous evaluation and preparation for accreditation
EVITAH (Annual Internal Evaluation)	Follow-up by the head of Faculty/Programme to improve the quality of study programmes based on the results of the EVISEM for one academic year, based on UPMA's recommendations.	Annually for all study programme	https://sipma.ui.ac.id/	Action for quality improvement
AIA (Academic Internal Audit)	To ensure that the institution is accountable for the quality and academic standards that have been determined.	New Study Programme, Study Programme that will carry out national/ International (re)accreditation	Site visit	Guarantee the quality, encourage the quality improvement, prepare for (re)accreditation
EVIN (Internal Evaluation)	An internal evaluation of national and international external accreditation instruments prepared by the study programme before submission	Study Programme that will carry out national/ International (re)accreditation	Review on completed Self-assessment Report (SAR) and visitation (if necessary)	Improvement of the contents of the SAR before it is submitted to the accreditation agency

Regarding teaching evaluations, UI requires all students to complete EDOM at the end of every semester as a prerequisite to seeing their score timely on the corresponding course in SIAK-NG. In this questionnaire, students can evaluate some aspects of the learning process, such as subject matter, learning process, classroom management, and transparency of learning evaluation with a scale from 1 to 6 (worst to best) and also write some suggestions or comments. The EDOM results are distributed to Faculty Leaders, Heads of Departments, and Heads of Study Programs to inform lecturer assignments for the following semester. These results are also reviewed in departmental meetings to provide feedback for all lecturers in general. At the university level, BPMA analyses the EDOM results and reports them to the UI leadership. As stated in the SAR, the average EDOM score for each semester from 2019 to 2023 is predominantly above 5 out of 6, indicating excellent performance.

In addition, the Research and teaching facility evaluation by doctoral students EMPIRIS covers various aspects that support doctoral students' studies and research such as research facilities and the dynamics of communication with supervisors, fellow students, and support staff.

To monitor the student's progress, UI uses the online system SIAK-NG. There, both students and academic advisors can find modules they already passed, their GPA, and so on. Through this system, lecturers are allowed to fill in the evaluation score of teaching results and the attendance rates of each student. The student’s progress is not only monitored by the advisor but also by the head of the study programme.

The UI Tracer Study (TSUI) is carried out centrally by DPHKA UI. Graduates are invited to complete a survey one year after graduation and again five years after graduation. The initial survey focuses on the initial job search and the evaluation of learning, while the second survey places greater emphasis on work dynamics and their correlation with competency acquisition. The collected data includes the graduates' satisfaction with their learning experience. The average satisfaction score is above 4 out of 5, with the exception of **DPBio**, in regard to opportunities to participate in research projects.

User satisfaction surveys are also carried out to verify UI graduates' work performance. The criteria evaluated encompass professional competence, including ethics, specialised knowledge, collaborative aptitude, proactivity and personal growth, alongside English fluency, IT proficiency and communication skills. Satisfaction levels are categorised as follows: poor (1.0), quite satisfied (2.0), satisfied (3.0), and very satisfied (4.0).

During the audit, students clarify that a teaching evaluation is conducted at the conclusion of each semester. They explain that there are different ways to communicate their feedback. However, as the experts request feedback on the evaluation results, they acknowledge that they are not informed about the results of the teaching evaluations. They are confident that the university has given due consideration to their feedback and that appropriate measures are being taken. Some of the lecturers present explain that they do provide their students with feedback on the results of the teaching evaluation surveys and questionnaires. However, the decision regarding whether or not to discuss this with their students rests with each lecturer individually.

In conclusion, the expert group confirms that the overall quality management system is effective in identifying weaknesses and improving programmes. All stakeholders are involved in the process. However, the experts suggest that the results of the teaching evaluations need to be communicated to the students in order to close the feedback loops. In addition, as remarked above in **1.5**, regarding statistical data about the progress of studies, the experts note that most students take more than six semesters to complete their studies (up to 11 semesters). Therefore, the experts recommend monitoring the reasons for longer study durations, especially in **DPPhys**, on a more systematic basis and, accordingly, implementing measures.

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

Regarding statistical data about the progress of studies see above Criterion **1**.

With regard to the closure of the feedback loop, UI states that a post-semester meeting with PhD students will be conducted to discuss feedback collected through EDOM, empirical observations, and general input. The session will also address the feedback provided by students. The industry experts have welcomed the introduction of this measure. However, as no evidence for the implementation of these meetings has been submitted, the experts are keen to understand how these meetings are organised and implemented. It is important to note that improvements to quality management require time to become apparent. The experts would therefore be interested in seeing how this process has been implemented and the progress and results obtained so far.

E Additional Criteria for Structured Doctoral Programmes

Criterion D 1 Research

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Module handbook for each programme
- Study programme's Website:
  - DPBio website https://biologi.sci-ui.id/
  - DPChem website https://www.chem.ui.ac.id
  - DPPhy and DPMat website https://physics.ui.ac.id/DPPhy
- Diploma Supplement for each programme
- Alignment of the EQF Level 8 with KKNI Level 9 and PLOs of each programme
- Brochure for each programme distributed to prospective students
- Sample flyers for active engagement and knowledge dissemination
- Samples of dissertations and papers in scientific journals
- Discussion during the audit

Preliminary assessment and analysis of the experts:
Regarding objectives and learning outcomes of all programmes under review see above **1.1** and below **Appendix**.

Both tracks offered in all doctoral programmes support the comprehensive development of doctoral candidates' knowledge and research skills in different phases in a structured progression which includes:

- Literature Review: Developing an in-depth understanding of the field.
- Research Proposal: Formulating research questions and methods.
- Progress Reports: Regular updates on research milestones.
- Publications: Doctoral candidates are also encouraged to participate in international forums and publish articles in Scopus-indexed journals (Q3 for By-Course-Research and Q2 for By-Research) or in nationally accredited journals with

a Sinta rank of at least 2 and prepare a draft manuscript for submission to an international journal. This should be accepted for publication in a reputable, indexed international journal as the main author, accompanied by their Promoter and Co-Promoter.

- Dissertation: Afterwards, the completed research is reviewed not only by the existing panel but also by an external examiner culminating in a significant original contribution to the field. Students present their final research results during the doctoral promotion. This includes a public defence before the doctoral examination committee, showcasing their contributions to the field and demonstrating their readiness to enter the professional or academic world as experts.

As stated in the SAR, there are several additional academic and professional development activities such as international conferences, public lectures, and workshops that feature prominent researchers and industry experts such as: The 5th Life Environmental Sciences and Academic Forum (LEAF) 2024 in conjunction with AUA Academic Conference on the Application of Sustainable Life: Balancing Science, Technology, and Human Development; International Symposium on the Current Progress of Mathematics and Science (ISCPMS); Mini symposium between FMNS UI and various universities abroad; MIPAtalk Series (monthly), and the Wednesday Seminar organized by the Physics department which provides a platform for knowledge sharing and engagement with experts in the field.

Each department shows a proportional increase in publications, with each student contributing at least two papers.

PhD students are very satisfied with both versions of the programmes, lecturers and supervisors. They find the curricula flexible and helpful in carrying out their research projects. The examination and monitoring sessions are in their opinion very useful to improve their research projects. In addition, they feel very well supported in writing papers and publishing them in recognised journals. During the on-site visit, the experts can review some samples of dissertations defended in the faculty. Based on that, the experts believe that the focus of the programme enables doctoral candidates to broaden their skills and network for their research activities. In addition, the experts observe that lecturers encourage PhD students to publish in international journals and that the university provides good conditions and support for PhD's research projects. However, the experts are of the opinion that an extended English abstract needs to be included in the dissertations.

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

Regarding the inclusion of English abstracts in the dissertations see above Criterion **2**.

Following a thorough review of several doctoral theses from the **DPChem programme**, the experts found that in general, the dissertations in the Doctoral programme in Chemistry presented by the Department are of an EQF 8 level. It applies for all programmes under review.

Criterion D 2 Duration and Credits

See above Criterion **1.5.**

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

See above Criterion **1**.

Criterion D 3 Soft Skills and Mobility

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Study programme's Website:
  - DPBio website https://biologi.sci-ui.id/
  - DPChem website https://www.chem.ui.ac.id
  - DPPhy and DPMat website https://physics.ui.ac.id/DPPhy
- Diploma Supplement for each programme
- Alignment of the EQF Level 8 with KKNI Level 9 and PLOs of each programme
- Brochure for each programme distributed to prospective students
- Module handbook for each programme
- Rector's Regulation No 3, 2024
- List of active international cooperation
- International student mobility activities

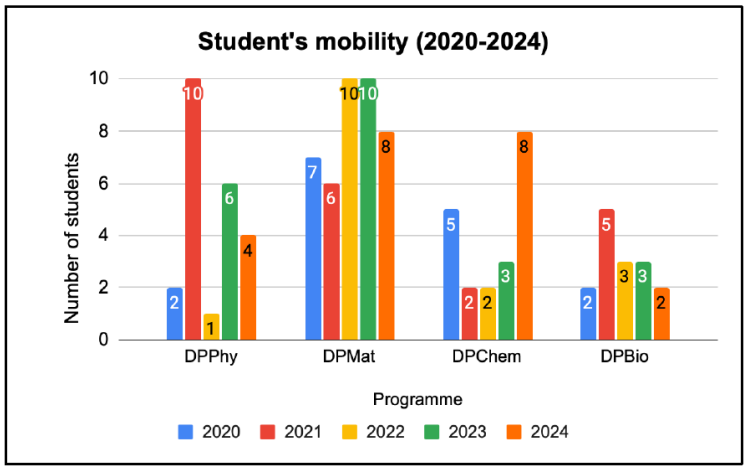
- Discussion during the audit

Preliminary assessment and analysis of the experts:
As stated in the SAR, the curriculum of each study programme emphasizes soft skills and professional development. Some highlighted soft skills include critical, creative, and innovative thinking; the ability to access, analyse, and generate information; effective communication; commitment; independence; scientific responsibility and academic ethics; objectivity; and fostering independent professional development and lifelong learning.

UI provides doctoral candidates with a wide range of support structures for professional development such as research exchange opportunities and workshops in transferable skills. These resources ensure that doctoral candidates acquire the skills necessary to succeed in both academic and non-academic settings. For training of soft skills, the Career Development Center of UI offers various soft skill enhancement opportunities such as internships, certified internships, workshops, and webinars related to soft skills and career development for all students.

Regarding mobility, Universitas Indonesia has established several international collaborations (45 countries, 357 partners, and 557 agreements) for student activities, including student exchange, joint research, dual degree programmes, joint degree programmes, and student mobility. As stated in Rector's Regulation No. 03 in 2024, UI doctoral students have the option to complete their studies either entirely at UI or partially at partner universities abroad through these activities. Students can earn credits from their participation in international mobility programmes from one or more overseas universities recognised by UI using the Credit Transfer scheme.

FMNS has partnership with 23 universities, one private company, and two research institutions worldwide, such as the University of Tokyo, Ulm University, RIKEN, and Kennan Eisei Kogyou Co.,Ltd. A list of all active international is provided. Students can conduct research with these international partners, supported financially either through Indonesian scholarships or funding from the partner institutions for international students. Following graphic shows the distribution of students' mobility in the four programmes under review:



With regard to **DPPhy**, the programme does not currently have an official student mobility programme. However, students are encouraged to participate in mobility opportunities as part of their research, often funded through lecturer grants. Some students secure funding from sponsorships to attend academic training programmes and conferences overseas.

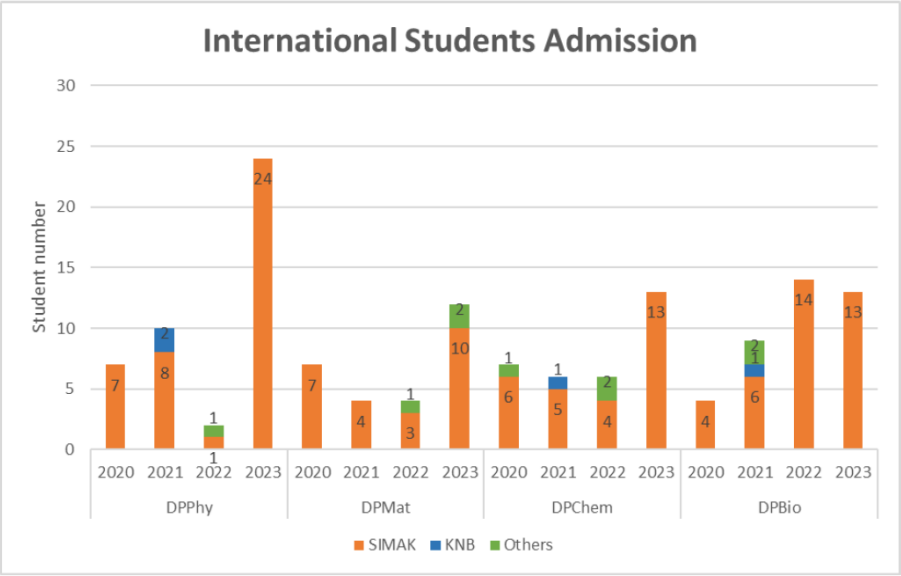
The **DPMat** actively promotes student mobility through a student mobility programme, collaborating with Indonesian institutions such as BRIN, Universitas Negeri Malang, Universitas Mercu Buana, Universitas Jendral Ahmad Yani Bandung, Universitas Padjadjaran, and Institut technology Bandung (ITB). The programme also includes research partnerships with international institutions, such as the Institute of Science Tokyo, Chungbuk National University, National Taiwan University of Science and Technology, University Kebangsaan Malaysia (UKM), and RIKEN. Furthermore, there is a joint graduate programme with RIKEN, as well as a Double Degree for Doctoral Programme between Universitas Indonesia and Hokkaido University. In addition to institutional partnerships, the student mobility programme supports various international research funding opportunities, including grants from the Global Institute for Materials Research Tohoku (GIMRT) Research Funding- Tohoku University, Rutherford Appleton Laboratory (RAL)–ISIS, National Cheng Kun University (NCKU) and Australian Nuclear Science and Technology Organization (ANSTO). Furthermore, students are encouraged to engage in international seminars and conferences.

DPChem focus on facilitating student exchange programmes, which involve collaboration between supervisors and foreign partners. These partners can serve as co-supervisors for students or provide research support. Funding for the programme may be provided by scholarship for students, research funds owned by supervisors through their grants, or partially by foreign collaborators. Doctoral students of **DPChem** have participated in internationals research programmes, for example, with the University of Kansas, University

of Aberdeen, University of Keio, and University of Warwick. In addition, students are encouraged to participate in scientific meeting activities at international conferences.

DPBio support students to participate in international seminars and conferences, internships, and research. There are also collaborations for supervision and research projects which are established at the departmental or faculty level, or on an individual basis between lecturers and their collaborators and then expanded to the departmental or faculty level. For instance, **DPBio** is involved in the Science and Technology Research Partnership for Sustainable Development (SATREPS) project with the National Agency of Research and Innovation (BRIN) and several universities in Japan. In addition, support is provided by the study programme for the collection of research data at a laboratory on the premises of partner universities. Short-term visiting trainees are also offered directly from partner international universities, including Korea Advanced Institute of Science & Technology (KAIST), South Korea, and Tohoku University, Japan.

Regarding incomings, the university remarks that the Faculty of Mathematics and Natural Sciences received, recently, international doctoral students which are funded by UI Great scholarship from UI and KNB scholarship from Ministry of Education, Culture, Research, and Technology in cooperation with the Ministry of Foreign Affairs and the Embassy. For instance, in **DPChem**, there are doctoral students from Pakistan and, in **DPBio**, from India. The number of doctoral students registered each year from different admission track in the faculty from 2020-2023 are showed in following figure:



The students interviewed express satisfaction with the support provided by the university and the faculty for mobility. Some of them have already undertaken research stays abroad, which have been financed in some cases by external grants and in others by the university.

One international student from Pakistan feels very-well supported by the scholarship provided. Nevertheless, some of the students would like to see a programme of regular international activities, such as international seminars, conferences and summer schools involving international guests, and to have a stronger international environment.

The experts are of the opinion that UI and the respective programmes under evaluation promote international student mobility and academic exchange through different cooperation and activities and support for students. However, based on the students' feedback, the faculty should enhance the internationalisation of the doctoral programmes offered. This should be achieved by extending the existing possibilities for research collaborations and inviting more international guest lecturers as well as by increasing the financial support for stays abroad. The experts conclude that UI offers a wide range of opportunities for the personal and professional development of doctoral students. However, they recommended to further strengthen the soft skills training for students and include contents in economy and entrepreneurship in the curriculum.

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

Regarding soft skills see above Criterion **1**.

Criterion D 4 Supervision and Assessment

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Student Handbook for doctoral programmes
- Agreement letter supervisor-student
- Rector’s decree about technical guidelines for writing final assignments
- Guidelines for facilities and accessibility for persons with disabilities
- Rector’s Decree on Code of Ethics & Code of Conduct Module handbook for each programme
- Study programme’s Website:
  - DPBio website: https://biologi.sci-ui.id/
  - DPChem website: https://www.chem.ui.ac.id
  - DPPhy and DPMat website: https://physics.ui.ac.id/DPPhy

- Guidelines for Handling Student Appeals
- Requirements for Similarity Checking for Undergraduate Thesis, Thesis, and Dissertation Manuscripts
- Module contracts and examination rubrics
- Samples of examinations and dissertations
- Discussion during the audit

Preliminary assessment and analysis of the experts:
The doctoral programmes under review make use of an official agreement between supervisor and doctoral candidate. This agreement promotes professionalism and accountability, outlines the rights and responsibilities of each party, and encourages the achievement of high-quality research outcomes. It contains the roles and responsibilities of the supervisor/co-supervisor and the student, the supervision and communication guidelines (as stipulated in Rector's Regulation No. 3 of 2024, Article 35, Clause 11), timelines and completion targets to ensure steady progress, research publication requirements, intellectual property, academic integrity, and ethical standards, safety and confidentiality considerations, personal development opportunities for students, and conflict resolution mechanisms to address issues arising during supervision. Clearly defined and standardized assessment rules are also implemented through detailed rubrics that all supervisors and examiners must follow. These rubrics outline specific criteria for evaluating research quality, progress, and essential academic skills, ensuring consistency and alignment with programme standards as follows:

Literature Review 1: This assessment evaluates candidates on their consistency in attending discussions, selection and quantity of literature, presentation skills, participation in discussions, the process of creating the literature review, and scientific demeanour. This assessment is conducted solely by the supervisor.

Literature Review 2: This assessment includes criteria similar to Literature Review Exam 1, such as attendance consistency, literature selection and quantity, content of the literature review, presentation skills, participation in discussions, the process of creating the literature review, and scientific demeanour.

Research Proposal: Evaluation criteria include the originality and significance of the research problem (30%), mastery of knowledge relevant to the research topic (20%), depth of research content (10%), understanding of research materials and methodology (20%), reasoning ability (10%), and potential contribution to science and its applications (10%).

Research Results Examination (1 or 2): This evaluation assesses target achievement in research, the quality of the presentation, the dissertation draft, and scientific publication achievements.

Doctoral Promotion: Assessment includes presentation quality, mastery of the material and discussion skills, scientific demeanour, and subject matter expertise.

Scientific Publication Evaluation: This assessment grades the published article based on the quality of the publisher. Articles published in Scopus and ISI Web of Science-indexed international journals receive the highest grade (A). Other categories include articles indexed only by Scopus, those not indexed by Scopus, and publications that appear only as proceedings.

Dissertation Examination: This includes criteria such as adherence to structural and writing guidelines, the quality of the introduction (title, problem statement, objectives), research hypotheses, substance, methods and data analysis, conclusion drawing, presentation of research results, discussion of findings, the dissertation completion process, and scientific demeanour (with additional criteria for supervisors), as well as the potential for dissemination".

The SAR states that the role of supervisors is to provide guidance and mentorship throughout the research process. This is to be achieved via regular meetings, held at least six times per semester, as documented in the university's SIAK NG system. The supervisor is also required to conduct progress reviews, ensuring timely feedback and addressing challenges, as well as facilitating skill development. The aim of this is to help students build their research skills, critical thinking, scientific writing, and problem-solving abilities.

In conclusion, the experts note that the supervisors are in close contact and work together with the doctoral candidates in their research projects and students feel well supervised and supported. Assessment rules seem to be clearly formulated and binding.

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

No comment.

Criterion D 5 Infrastructure

See above Criterion **3.3**.

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

See above Criterion **3**.

Criterion D 6 Funding

Evidence:

- Self-Assessment Report (SAR)
- Curriculum handbook for each programme
- Research Funding by Faculty Staff
- FMIPA Collaborations in 2022-2024
- List of Past Grants Socialization and Information Sessions
- Discussion during the audit

Preliminary assessment and analysis of the experts:
As explained in **3.3**., UI's financial resources come from several sources such as government funding, societal contributions, tuition fees, FMNS specialized work units (UKK), Ventura, collaborative projects, and other public funding sources. These funds support routine operational and academic activities, with specific allocations for each study programme.

Doctoral students receive, in some cases, scholarships from their employing institutions, the government, or other organizations, ensuring their financial security during their studies. In addition, students can apply for grants from internal and external sources in collaboration with their supervisors. These grants support a wide range of research activities, enabling students and faculty members to undertake research projects. Information on funding opportunities, particularly for research, is provided by the Directorate of Research and Development, Universitas Indonesia or in annual discussions and information sessions held by the Faculty, the University, and the government. Furthermore, collaborative agreements with universities, companies, and research institutions provide additional resources and foster high-impact collaborative research.

The majority of doctoral students confirm that they have a scholarship. The expert group concludes that the university and state grants provide sufficient financial support for doctoral candidates and that the doctoral programme under review has adequate and sustainable funding.

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

No comment.

Criterion D 7 Quality Assurance

Evidence:

- Self-Assessment Report (SAR)
- Faculty's Website: https://sci.ui.ac.id/en/pedoman-akademik/
- Rector Decree No. 3/2024 about doctoral programme implementation
- Student handbook Doctoral Programme, FMIPA UI
- Code of Ethics and Code of Conduct
- Guidelines for Resolving Violations of the Ethics and Conduct Code
- Sample of module contract
- Guidelines for UI Internal Quality Assurance System
- Sample EDOM (Questionnaire on Lecturer Evaluation by Students)
- Sample EMPIRIS 2023-2024 (Questionnaire on Research and Teaching Facility Evaluation)
- Results of surveys
- Statistical data about the progress of studies
- Discussion during the audit

Preliminary assessment and analysis of the experts:

Rector Decree No. 3/2024 about doctoral programme implementation contains all rights and duties of the doctoral candidates at UI as well as relevant organizational arrangements. Additionally, the student handbook for doctoral programmes of the faculty serves as the academic guide for doctoral programme students, which includes an overview of supporting units, the faculty and department profiles, as well as the academic systems and regulations. The regulations and rules are based on the Rector's Decree and Curriculum Decree for each Study Program.

The faculty assess students' progress with a mandatory requirement to publish in national journals, international journals, or conference proceedings. Each department shows a proportional increase in publications, with each student contributing at least two papers. Publication data, including the number and quality of articles, citation counts, and journal

quartiles, are collected and analysed. Citation counts, which reflect the relevance and impact of research, are monitored to assess contributions to academic discourse.

With regard to internal quality assurance tools see above Criterion **5**.

The experts confirm that the study programmes are subject to periodical internal quality assurance which includes all stakeholders. The results of these processes are incorporated into the continuous development of the programme. In addition, the experts are of the opinion that rules of good scientific practice are followed and the rights and duties of the doctoral candidates as well as relevant organizational arrangements are transparently anchored and available for all stakeholders.

Final assessment of the experts after the comment of the Higher Education Institution regarding criterion D 7:

See above Criterion **5**.

F Additional Documents

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

D 1. Five samples of doctoral thesis from the doctoral programme in Chemistry.

G Comment of the Higher Education Institution (07.07.2025)

The following quotes the comment of the institution:

1. The Degree Programme: Concept, content & implementation

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

Peer Review Preliminary Report:

While user satisfaction data showed adequate English fluency, experts specifically noted that the score for English fluency was "relatively lower than other scores." They concluded there was "still a need for development of fluency quality, especially academic writing in international collaboration." This indicates a concern about the practical application of English skills for global academic engagement.

UI Response:

Universitas Indonesia has implemented several programs to help students practice their English writing and speaking while completing their modules, including the Workshop and Coaching Clinic Online Lecture Series. To strengthen students' academic writing skills, the Faculty of Mathematics and Natural Sciences (FMIPA) has held various talks and workshops. Complementing these efforts, the University of Indonesia Library has also conducted information literacy trainings for both general student audiences and specific academic levels or disciplines. Examples of these activities are provided in Appendices 1.1 and 1.2. The speakers for these programs are experts in their fields, particularly in scientific writing, and have extensive experience publishing articles in numerous international journals. Our next step is to improve the monitoring of student participation in these activities and training sessions.

Peer Review Preliminary Report:

Experts mentioned in the discussion "about the limitations of students being guided by a lecturer." This suggests a potential issue with the capacity or availability of supervisors to provide adequate guidance to students.

UI Response:

We confirmed that supervisors consistently support students in achieving their academic goals. Supervisors in the Doctoral Program must hold the rank of Professor or Associate Professor. Over the past five years, the number of eligible faculty members qualified to supervise doctoral students has increased, reflecting the faculty's commitment to providing competent academic staff.

Since the 2024–2025 academic year, a Supervisor–Student Contract has been implemented, signed by both parties to ensure a professional and structured relationship between supervisors and their students (Appendix 1.3). This contract outlines key elements such as: (1) roles and responsibilities, (2) meeting and communication protocols, and (3) timelines and completion milestones.

Criterion 1.2 Name of the degree programmes

No comment

Criterion 1.3 Curriculum

Peer Review Preliminary Report:

Experts "raise concerns with the programme coordinators and students about the clarity and suitability of some of the module contents included in the By-Course-Research programme's first year and some elective modules across all programmes under review." They specifically noted that the information in the module handbook and reference list "did not fully align with the level of complexity expected for doctoral programmes." While clarifications were provided, this remained an area of concern regarding the initial perceived depth of some course material.

UI Response:

In response to the expert's feedback regarding the clarity and suitability of module contents, we fully acknowledged the concerns raised about the alignment of our module handbooks and reference lists with the expected complexity for doctoral programs. This was particularly noted within the By-Course-Research program's first year and specific elective modules. We have already taken immediate steps to address these concerns and are updating all the module handbooks (Appendix 1.4). Specifically, we have:

1. Revised the module handbooks to ensure all content accurately reflects the rigorous academic standards.

2. Updated the references lists include literature and resources that are unequivocally relevant and appropriate for the doctoral level, providing the necessary depth and breadth for advanced research.

3. Improved module descriptions to clearly articulate the learning outcomes, pedagogical approach, and expected level of engagement. This has enhanced prospective students' and current participants' understanding of the course material's complexity.

Please also see our response to Criteria 4.1.

Peer Review Preliminary Report:

Experts recommended that "contents related to the economy, business and entrepreneurship should be included in the programmes." Student feedback suggested that such content would strengthen applied research and attract students from industry.

UI Response:

Since the curriculum revision in 2024, we have introduced an "Integration of Science and Mathematics" course. We will embed this content within our existing "Integration of Science and Mathematics" courses, ensuring that these crucial areas are not only offered as supplementary learning but are also woven into the core curriculum where appropriate. This dual approach aims to enhance the practical relevance of our programs and better prepare our graduates for diverse career paths, including those in industry and entrepreneurial ventures.

Additionally, we've initiated a workshop series designed explicitly for our Master's (S2) and Doctoral (S3) students. These workshops will be held twice a year and will provide dedicated opportunities for students to engage in relevant topics in economics, business strategy, and entrepreneurship.

Peer Review Preliminary Report:

While stakeholders contribute, the experts "get the impression that alumni and industry could be strongly incorporated into the process of development of the degree programmes." They specifically recommend that "representatives of the industry and alumni should be stronger involved in the curricula development and integrated, as mentioned above, as guest lecturers or speakers to deliver workshops or lecture series."

UI Response:

While we currently benefit from stakeholder contributions, deeper integration of these vital groups would significantly enrich our degree programs. The Faculty of Mathematics and Natural Sciences (FMIPA) has already made strides in this direction with initiatives like "MIPA TALK" and its lecture series. An overview of Conferences and the MIPATalk Series held by FMIPA (2020-2024) illustrates efforts to improve the academic atmosphere and foster internationalization (Appendix 1.5).

A crucial next step involves increasing alumni involvement in these events. The faculty has already initiated a series of workshops specifically for our Master's and Doctoral students. A key component of these workshops is the active invitation of alumni to serve as guest lecturers or speakers. This direct engagement provides our students with invaluable real-world perspectives, current industry trends, and networking opportunities, directly aligning with the expert's recommendation for integrating industry and alumni representatives into our educational delivery. This initiative will enhance our curriculum's relevance, foster a more robust connection between academia and professional practice, and build momentum for greater student participation in internationalization programs within FMIPA. Students have already expressed a strong desire for regular international activities, such as international seminars, conferences, and summer schools involving international guests, to create a more robust international environment within the university. This addresses the expert's comments regarding D.3 criteria, promoting a more internationally-focused academic experience.

Criterion 1.4 Admission Requirements

No comment

Criterion 1.5 Workload and Credits

Peer Review Preliminary Report:

The expert report notes that most students take more than six semesters to complete their studies (up to 11 semesters), and the average score for time available for preparing drafts for research publications and other activities outside academia is below 4 out of 5. Given this, the experts "recommend monitoring the reasons for longer study durations, especially in DPPhy, on a more systematic basis and, accordingly, implementing measures." This indicates a need for a more structured approach to understanding and addressing study delays.

UI Response:

We want to highlight the proactive steps taken within our 2024 curriculum. We've implemented significant changes to the course structure, specifically:

1. Mapping out elective modules to be more evenly distributed across all semesters. This strategic redistribution aims to create a more balanced workload for students, preventing bottlenecks that might contribute to longer study durations. This also facilitates improved continuous monitoring of student progress, allowing for earlier identification of potential delays.

2. We are also actively comparing the old curriculum with the new 2024 curriculum. This comparative analysis is crucial for understanding the impact of our changes and identifying specific areas where the new structure is more effective in promoting the timely completion of studies. This data-driven approach will help us validate the effectiveness of our revised curriculum in addressing the root causes of extended study durations.

Criterion 1.6 Didactics and Teaching Methodology

No comment

2. Exams: System, concept and organisation

Peer Review Preliminary Report:

A significant fraction of dissertations is of a very high scientific standard and shows that students are able to conduct innovative research work. However, they are of the opinion that an extended English abstract needs to be included in the dissertations.

UI Response:

Thank you for your valuable suggestions. At our university, graduates are required to provide an abstract in both Bahasa Indonesia and English in the dissertation draft. However, extended abstracts are not included in the dissertation itself, as the dissertations are not intended for public access.

Therefore, in accordance with the Rector's Decree No. 2413 of 2017 (Appendix 2.7), students are required to prepare a separate extended abstract and upload it to the UI Library repository via the following link: https://lib.ui.ac.id/unggah/node/add/disertasi.

Graduates, upon approval from the supervisor, may choose whether their extended abstract or short manuscript is made publicly accessible or kept restricted due to plans for future publication.

FMIPA UI has been encouraging students to write the extended abstract in English. Examples of extended abstracts uploaded by our students/graduates can be accessed from the link below:

https://drive.google.com/drive/folders/1HDzio7DuU5-apztj_1sH0wMBQMJJvT5s?usp=sharing

To incorporate the ASIIN peers' comments, we plan to make it mandatory for FMIPA UI students to write their extended abstracts in English going forward (Internal memo No. ND-1033/UN2.F3.D/PDP/2025).

3. Resources

Criterion 3.1 Staff and Staff Development

No comment

Criterion 3.2 Student Support and Student Services

No comment

Criterion 3.3 Funds and equipment

Peer Review Preliminary Report:

Nevertheless, based on the visit and the feedback of the different stakeholders, for competing with group operating on international standards, advancing of equipment and facilities, according to the experts' assessment, should be considered by UI. In this context, the experts suggest that, in order to improve equipment for conducting research, UI should invest more in shared facilities or large devices to be shared for research proposals. In addition, renewing equipment and expanding workspace in fume hoods in teaching laboratories for students are required, for meeting demands of general safety regulations. Similarly, international standards of safety in the physics and chemistry labs need to be followed (e.g. vent in Biophysics and chemistry labs or for working with nanomaterials, in terms of PPE).

In addition, books, in printed or/and electronic versions, need to be present in newer issues, and higher diversity – either in the library, or in research groups. Although existing, access to scientific literature seems to pose a bottleneck for retrieving information from databases and from electronic journals. For the sake of quality, depth and study progress,

the university should evaluate the actual need for increasing available number of respective licenses, for not limiting progress due to accessibility to existing knowledge.

UI Response:

In response to the reviewers' recommendation regarding the need to expand shared facilities with larger laboratory spaces and comprehensive instrumentation accessible to all students across faculties, the Universitas Indonesia (UI) has taken concrete steps to address these concerns. UI has significantly expanded its laboratory infrastructure through the development of the Integrated Laboratory and Research Center. This facility provides ample space for research activities and is designed to be accessible for students from various faculties, thereby promoting interdisciplinary collaboration and optimizing the use of existing instrumentation. Furthermore, UI actively strengthens partnerships with other institutions including universities, research institutes, or industry, which allows students from Universitas Indonesia (post and undergraduate) to conduct their research there (Appendix 3.1). There are at least 14, 11, 15 and 28 laboratories/institutions collaborating with the Doctoral Program of Chemistry, Physics, Materials Science, and Biology, respectively. These collaborations contribute to the enrichment of laboratory facilities and the acquisition of advanced research instrumentation.

Over the past two years, UI has also received funding through the PUAPT Net Zero Initiative. This grant has supported not only the procurement of scientific instruments, particularly within the Faculties of Mathematics and Natural Sciences (FMIPA) and Engineering, but also major renovations of laboratory infrastructure. Notably, several laboratories within FMIPA, such as the Multidisciplinary Laboratory, the Center of Excellence Laboratory, and the Chemistry Research Laboratory, have been modernizing to provide better organized and internationally compliant research environments. These upgrades include the implementation of international safety standards, such as the installation of emergency safety showers, proper chemical and waste management systems, secure gas cylinder storage and handling in chemistry laboratories. Additionally, the sample preparation for nanomaterial and biophysics laboratories are performed in the chemical physics laboratory which has been certified as a safety laboratory from unit safety of university. The activities in nanomaterial and biophysics are to measure the dry sample with apparatus in the laboratories. This laboratory is also facilitated with vent and other safety aspects. These improvements aim to ensure a safe, efficient, and conducive environment for high-quality research activities at FMIPA UI.

We would like to express our sincere appreciation for the reviewer's constructive comment regarding the fume hood availability and laboratory space in the teaching laboratories of the Department of Chemistry. While the current ASIIN accreditation process focuses on the Doctoral Program in Chemistry, we value the reviewer's attention to the undergraduate teaching laboratory facilities. At present, we have three undergraduate teaching laboratories, and each of them is equipped with two fume hoods. To minimize overcrowding and avoid long queues during their use, we organize parallel classes for laboratory courses with staggered schedules. Additionally, not all modules in the undergraduate practical courses require experiments to be conducted under a fume hood, which helps reduce demand at any one time. Nevertheless, we take the reviewer's observation seriously. We are considering future improvements, including possible renovation and procurement of additional fume hoods, depending on university policy on space availability and funding opportunities.

We also appreciate your observation regarding the importance of access to up-to-date and diverse scientific literature. At the Universitas Indonesia (UI), a centralized university library provides a wide-ranging collection of books and journals in both printed and digital formats. However, to improve the efficiency, starting from 2010, Universitas Indonesia is focusing on arranging the database mainly in digital formats. This central library serves all faculties and study programs, offering general and foundational resources that support a broad academic audience. To complement this, each department or study program also maintains its own reading room or departmental library. These facilities offer specialized and program-specific literature tailored to the academic and research needs of students within that field. Students are able to read and borrow these materials to support and deepen their academic work.

In addition, UI ensures access to a comprehensive selection of international scientific journals and databases. All students and academic staff have institutional access to leading platforms such as Nature, ProQuest, Elsevier, SAGE Journals, Taylor & Francis, AIP, and APS, among others. These subscriptions are regularly reviewed and updated to ensure the availability of current and relevant publications.

Universitas Indonesia (UI) offers extensive access to a wide array of e-resources and databases through its dedicated Universitas Indonesia Library. These resources are crucial for supporting the academic endeavors of students, faculty, and researchers across all disciplines, including the Department of Chemistry. Members of the UI academic community can conveniently access these comprehensive digital collections, including a vast number of e-books and journals relevant to chemistry, from any location via the library's remote

access portal, available at https://remote-lib.ui.ac.id/menu. This portal ensures that valuable scholarly information is readily accessible, fostering a rich environment for learning and research.

Regarding the chemistry assessor's comment on the e-resources at Universitas Indonesia, below is our responses. The Department of Chemistry at Universitas Indonesia (UI) benefits from access to a robust collection of e-resources crucial for academic and research pursuits. These resources are primarily provided through the main Universitas Indonesia Library subscriptions and include highly reputable databases for book chapters and journal articles related to Chemistry. Specific E-resources subscribed by the Department of Chemistry are as follows:

1. Royal Society of Chemistry
2. ScienceDirect
3. Scopus

The Department of Chemistry at Universitas Indonesia (UI) leverages the extensive e-resources subscribed by the main UI Library to support its academic and research needs. These resources encompass a vast collection of approximately 92,000 book chapters specifically related to chemistry and broader scientific topics. Access to these detailed resources is typically provided through the Universitas Indonesia Library's online database portal, where users can navigate to various platforms such as ScienceDirect, Wiley Online Library, and Taylor & Francis, among others, to find relevant chemistry-focused content. The detailed link can be accessed via

http://remote-lib.ui.ac.id:7368/?s.q=Chemistry#!/search?pn=1&ho=t&include.ft.matches=f&fvf=ContentType,Book%20Chapter,f&l=en&q=Chemistry

We have approximately 2.8 million journal article database recommendations specifically related to the discipline of chemistry and categorized under the subject term "Chemistry." The detailed link can be accessed via

https://remote-lib.ui.ac.id:7368/?s.q=Chemistry#!/search?pn=1&ho=t&include.ft.matches=f&fvf=ContentType,Journal%20Article,f%7CDiscipline,chemistry,f%7CSubjectTerms,chemistry,f&l=en&q=Chemistry

UI is committed to continually evaluating the needs of its academic community. To that end, the university is exploring the possibility of expanding access by increasing the number of licenses or subscriptions, particularly for high-demand databases, to prevent access limitations that may hinder academic progress and the quality of research and learning.

4. Transparency and documentation

Criterion 4.1 Module descriptions

Peer Review Preliminary Report:

After reviewing the module handbook for each area, the experts agree that the module handbooks should include more specialised content descriptions. A revision and update of the module handbooks is required according to the quality standards for doctoral level, particularly for DPChem, where all the chemistry modules seem to lack information on content. For instance, the responsible persons are specified in the fewest modules and the reading lists appear to be not updated. It is frequently not possible to deduce the conciseness of the examination methods mentioned for theory modules, given the comparatively little specific information on intended learning outcomes. A significant proportion of the intended learning outcomes outlined in the module descriptions relate to the personal development of students, i.e. soft skills. Furthermore, some module descriptions in the chemistry curriculum are identical (e.g. Scientific Publication 1 and 2; International Publication 1 and 2). It should also be clear in the module handbook which language the course is taught in (English or Indonesian). The experts also remark accurate documentation of the appropriate level of qualification requires a revision of module descriptions. This revision should include an outline of the content, as well as a specification of the intended learning outcomes in a sufficiently precise manner.

UI Response:

We have carefully considered the suggestion and made the necessary revisions. The module description has been revised to ensure the intended learning outcomes are described more precisely and at an appropriate level of qualification. We have also refined the distinction between soft skills and subject-specific competencies to provide better clarity. The language of instruction for each module has now been clearly stated. The updated module handbook has been uploaded and is now available on the department's official website as follows:

- DPPhy:

https://physics.ui.ac.id/wp-content/uploads/2025/07/S3-Physics-Module-Handbook-2025.pdf

- DPMat:

https://physics.ui.ac.id/wp-content/uploads/2025/07/C4-S3-Material_Module-Handbook.pdf

- DPChem:

https://chem.ui.ac.id/wp-content/uploads/2025/07/Appendix-4.1.3.-Module-Handbook-Doctorale-Programme-in-Chemistry-2024.pdf

- DPBio:

https://biologi.sci-ui.id/wp-content/uploads/2025/07/C4-S3-Biology_Module-Handbook-2025_Updated.pdf

Criterion 4.2 Diploma and Diploma Supplement

Peer Review Preliminary Report:

On the basis of samples of these documents, the experts confirm that students on the programmes assessed receive a Diploma Supplement in Indonesia and English and that it contains the required information. However, the experts take note that the diploma supplements of all programmes under review do not contain information of the student's GPA relative to the cohort. The experts are of the opinion that the GPA distribution of graduates needs to be added in the diploma supplement to ensure fair transfer and recognition of grades of mobile students.

UI Response:

We appreciate the experts' observation regarding the inclusion of GPA relative to the cohort in the Diploma Supplement. Since 2022, the issuance of Diploma Supplements at our faculty had included cohort-related information. However, starting from 2024 academic year, the issuance process has been centralized at the university level to ensure uniformity across all faculties within Universitas Indonesia. This centralized issuance of Diploma supplement with international standard showed UI’s commitment to be comply with the international academic standard.

Currently, the GPA relative to the cohort has not been incorporated into the university-issued Diploma Supplements. In response to the experts' recommendation, we have already formally submitted a request to the university (Vice Rector) to include this information in future Diploma Supplements (Internal memo No. ND-1114/UN2.F3.D/OTL/2025 - Appendix 4.1). We are committed to enhancing transparency and supporting fair transfer and recognition of academic achievements for mobile students.

Criterion 4.3 Relevant rules

No comment

5. Quality management: quality assessment and development

Peer Review Preliminary Report:

The UI Tracer Study (TSUI) is carried out centrally by DPHKA UI. Graduates are invited to complete a survey one year after graduation and again five years after graduation. The initial survey focuses on the initial job search and the evaluation of learning, while the second survey places greater emphasis on work dynamics and their correlation with competency acquisition. The collected data includes the graduates' satisfaction with their learning experience. The average satisfaction score is above 4 out of 5, with the exception of DPBio, in regard to opportunities to participate in research projects.

UI Response:

The satisfaction survey presented in Figure 5.4.1 of SAR is based on a survey conducted among graduates from 2021–2022, during which some students were not involved in faculty research projects. This was due to the limited number of available projects at the time. However, starting in 2022, several faculty members received promotions and became more competitive in securing research projects. As shown in Table 5.1, all active doctoral students in Biology from 2022 to 2024 have been involved in faculty research projects.

Table 5.1 Number of Students Involved in Faculty Research Project 2022-2024

No	Project Principle Investigator	Number of PhD Students involved in the Project		
		2022	2023	2024
1	Prof. Dr. Abinawanto, M.Si.	1	3	2
2	Dr. Dra. Andi Salamah	2	2	8
3	Prof. Anom Bowolaksono, Ph.D.	0	2	1
4	Dr. Dian Hendrayanti, M.Sc.	0	0	2
5	Prof. Dr. Jatna Supriatna, M.Sc.	2	1	2
6	Prof. Dr. Luthfiralda Sjahfirdi, M.Biomed.	0	1	1
7	Prof. Dr. rer. nat. Mufti Petala Patria, M.Sc.	2	0	1
8	Prof. Dr. Dra. Nining Betawati Prihantini, M.Sc.	0	0	1
9	Prof. Dr. Dra. Noverita Dian Takarina, M.Sc.	0	1	0
10	Dr. Retno Lestari, S.Si., M.Si.	2	0	3
11	Prof. Dra. Wellyzar Sjamsuridzal, M.Sc., Ph.D.	0	1	1
12	Dr. rer. nat. Yasman, M.Sc.	4	2	4
	Total number of students involved in project	**13**	**13**	**26**
	Total number of active students	**13**	**13**	**26**

Peer Review Preliminary Report:

Regarding statistical data about the progress of studies, the experts note that the majority of students take more than six semesters to complete their studies (up to 11 semesters). Therefore, the experts recommend monitoring the reasons for longer study durations, especially in DPPhys, on a more systematic basis and, accordingly, implementing measures.

UI Response:

The Doctoral Program in Physics admitted its first cohort in 2017 through a collaborative initiative with government research institutions, including LIPI and BATAN (now integrated into the National Research and Innovation Agency/BRIN). Doctoral research topics are jointly developed between Universitas Indonesia and the affiliated research institutions. Most projects involve extensive data collection and validation conducted off-campus in regions such as Subang (approximately 200 km from Depok) and other designated sites. In addition, various measurements and benchmarking activities are carried out at partner institutions.

The COVID-19 pandemic significantly disrupted research progress due to mobility restrictions and limited access to essential research funding. These constraints persisted through the end of 2021, particularly with regard to field data collection budgets, leading to delays in research activities and extended time-to-degree for affected students. By 2022, Indonesia's socio-economic conditions had begun to improve, enabling the resumption of student research activities. While research mobility increased and limited funding became available, many students continued to face psychological challenges, including grief and loss, as well as decreased motivation due to prolonged academic stagnation. In response, the program implemented coaching and mentoring strategies to address these issues. Consequently, students whose research was impacted by the pandemic experienced extended durations to completion.

Table 5.2. List of DPPhy graduates from the 2024–2025 academic year and their respective study durations

No	Student ID	Student's Name	Grade	Length of Study	Graduation Semester
1	2006511262	Agustina Rachma Wardani	3.79	9	2024/2025 - 1
2	2006565063	Tavip Dwikorianto	3.88	9	2024/2025 - 1
3	2106768020	Maulana Putra	4.00	7	2024/2025 - 1
4	2106768033	Rd. Yudha Mardyansyah	3.86	7	2024/2025 - 1
5	2106768052	Tri Istiana	4.00	7	2024/2025 - 1
6	2106768014	Iqbal	3.93	8	2024/2025 - 2
7	2106768046	Samsul Hafiz	3.93	8	2024/2025 - 2
8	2106780000	Lendriadi Agung	3.86	5	2024/2025 – 2
		Average	3.91	7.50	

Table 5.2 presents a list of DPPhy graduates from the 2024–2025 academic year and their respective study durations. with an average completion time of 7.5 semesters. This reflects a notable improvement in the study completion time within the DPPhy program. Please note that Lendriadi Agung completed his doctoral studies in 5 semesters through the fast-track Master's-to-PhD program. In total, he completed both degrees in 8 semesters—3 semesters for the Master's and 5 semesters for the doctorate—demonstrating timely and successful completion of the program.

Peer Review Preliminary Report:

During the audit, students clarify that a teaching evaluation is conducted at the conclusion of each semester. They explain that there are different ways to communicate their feedback. However, as the experts request feedback on the evaluation results, they acknowledge that they are not informed about the results of the teaching evaluations. They are confident that the university has given due consideration to their feedback and that appropriate measures are being taken. Some of the lecturers present explain that they do provide their students with feedback on the results of the teaching evaluation surveys and questionnaires. However, the decision regarding whether or not to discuss this with their students rests with each lecturer individually.

The experts suggest that the results of the teaching evaluations need to be communicated to the students in order to close the feedback loops.

UI Response:

A post-semester meeting with PhD students will be conducted to discuss feedback collected through EDOM, empirical observations, and general input. The session will also focus on addressing the feedback provided by the students.

B Additional Criteria for Structured Doctoral Programmes

Criterion D 1 Research

Peer Review Preliminary Report:

However, the experts are of the opinion that an extended English abstract needs to be included in the dissertations.

UI Response:

Please see our response to Criterion 2.

Criterion D 2 Duration and Credits

No comment

Criterion D 3 Soft Skills and Mobility

Peer Review Preliminary Report:

The students interviewed express satisfaction with the support provided by the university and the faculty for mobility. Some of them have already undertaken research stays abroad, which have been financed in some cases by external grants and in others by the university. One international student from Pakistan feels very-well supported by the scholarship provided. Nevertheless, some of the students would like to see a programme of regular international activities, such as international seminars, conferences and summer schools involving international guests, and to have a stronger international environment.

The experts are of the opinion that UI and the respective programmes under evaluation promote international student mobility and academic exchange through different cooperation and activities and support for students. However, based on the students' feedback, the faculty should enhance the internationalisation of the doctoral programmes offered. This should be achieved by extending the existing possibilities for research collaborations and inviting more international guest lecturers as well as by increasing the financial support for stays abroad. The experts conclude that UI offers a wide range of opportunities for the personal and professional development of doctoral students. However, they recommended to further strengthen the soft skills training for students and include contents in economy and entrepreneurship in the curriculum.

UI Response:

Please see our response to Criteria 1.3.

Criterion D 4 Supervision and Assessment

No comment

Criterion D 5 Infrastructure

No comment

Criterion D 6 Funding

No comment

Criterion D 7 Quality Assurance

No comment

C Additional Documents

Peer Review Preliminary Report:

D 1. Five samples of doctoral thesis from the doctoral programme in Chemistry

UI Response:

During the visitation, we fulfilled the expert's request by adding 5 dissertations (Gunawan Pasaribu, Harits, Idra, Marlina, and Muhammad Iqbal) to the initially provided three dissertations, bringing the total to 8 examples accessible via the same link D1, and a screenshot of these 5 additional dissertations is attached and accessible via this link D2.

We can now only add 4 more (Additional 1 - 4) dissertation examples, bringing the total to 12. This is due to the limited soft copies of dissertations we currently possess. The dissertations from students who graduated five years ago are only available as hard copies and are written in Indonesian. Please refer to the following link D3 to access them”.

H Summary: Expert recommendations (28.07.2025)

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Doctoral programme in Biology	With requirements for one year	30.09.2031	–	–
Doctoral programme in Chemistry	With requirements for one year	30.09.2031	–	–
Doctoral programme in Material Science	With requirements for one year	30.09.2031	–	–
Doctoral programme in Physics	With requirements for one year	30.09.2031	–	–

Requirements

For all degree programmes

A 1. (ASIIN 1.5, D2) Monitor reasons for longer length of study and take measures based on the results.

A 2. (ASIIN 2, D 1) An extended English abstract needs to be included in the doctoral dissertations.

A 3. (ASIIN 4.1) The module handbooks need to be reviewed and revised, particularly, in terms of content description, learning outcomes and examination forms.

A 4. (ASIIN 4.2) Ensure that the Diploma Supplement contains detailed information about the student's GPA relative to the cohort.

A 5. (ASIIN 5) Close the feedback loops and inform the students directly about the results of the course questionnaires.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3, D 3) It is recommended to further strengthen the soft skills training for students.

E 2. (ASIIN 1.3) It is recommended to strengthen the involvement of stakeholders from industry in more concise manner for developing curricula in general, and for identifying future oriented applied fields of research in general.

E 3. (ASIIN 1.5, D2) It is recommended to enhance the internationalization strategy by increasing the financial support for stays abroad, extending the already existing possibilities of research collaborations and inviting more international guest's lecturers.

E 4. (ASIIN 3.3, D5) It is recommended to provide more licenses for access to international journals.

I Comment of the Technical Committees

Technical Committee 05 – Materials Science, Physical Technologies (18.09.2025)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and follows the assessment of the experts without changes.

The Technical Committee 13 – Physics recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Doctoral Programme in Physics	With requirements for one year	30.09.2031	–	–

Technical Committee 09 – Chemistry, Pharmacy (17.09.2025)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and agrees with the requirements (6) and recommendations (4) proposed by the expert group.

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Doctoral Programme in Chemistry	With requirements for one year	30.09.2031	–	–

Technical Committee 10 – Life Sciences (18.09.2025)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and agrees with the requirments (6) and recommendations (4) proposed by the expert group.

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Doctoral Programme in Biology	With requirements for one year	30.09.2031	–	–

Technical Committee 13 – Physics (05.09.2025)

Assessment and analysis for the award of the ASIIN seal:

The TC discusses the procedure and follows the experts' assessment without changes.

The Technical Committee 13 – Physics recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Doctoral Programme in Physics	With requirements for one year	30.09.2031	–	–

J Decision of the Accreditation Commission (26.09.2025)

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

The accreditation commission follows the experts' assessment without changes.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Maximum duration of accreditation
Doctoral programme in Biology	With requirements for one year	30.09.2031
Doctoral programme in Chemistry	With requirements for one year	30.09.2031
Doctoral programme in Material Science	With requirements for one year	30.09.2031
Doctoral programme in Physics	With requirements for one year	30.09.2031

Requirements

For all degree programmes

A 1. (ASIIN 1.5, D2) Monitor reasons for longer length of study and take measures based on the results.

A 2. (ASIIN 2, D 1) An extended English abstract needs to be included in the doctoral dissertations.

A 3. (ASIIN 4.1) The module handbooks need to be reviewed and revised, particularly, in terms of content description, learning outcomes and examination forms.

A 4. (ASIIN 4.2) Ensure that the Diploma Supplement contains detailed information about the student's GPA relative to the cohort.

A 5. (ASIIN 5) Close the feedback loops and inform the students directly about the results of the course questionnaires.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3, D 3) It is recommended to further strengthen the soft skills training for students.

E 2. (ASIIN 1.3) It is recommended to strengthen the involvement of stakeholders from industry in more concise manner for developing curricula in general, and for identifying future oriented applied fields of research in general.

E 3. (ASIIN 1.5, D2) It is recommended to enhance the internationalization strategy by increasing the financial support for stays abroad, extending the already existing possibilities of research collaborations and inviting more international guest's lecturers.

E 4. (ASIIN 3.3, D5) It is recommended to provide more licenses for access to international journals.

Appendix: Programme Learning Outcomes and Curricula

According to the university's website, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Doctoral programme in Physics**:

Objectives

1. Producing internationally standardized doctoral graduates in physics and its applications to become intellectuals and cultured scientists, able to enter and/or create jobs, and develop themselves into professionals through comprehensive and accurate research.
2. Producing superior, original scientific and creative works and works that become references in the development of science in the field of physics and its applications through the development and practice of science and technology with a scientific method approach.
3. Producing original community service works through the application of physics and its applications to realize the development of science and technology based on physics in industry and society.

Learning Outcomes

1. Able to analyze scientific problems and new cases in their field of work comprehensively and thoroughly in all aspects of physics knowledge and its applications (C4)
2. Able to synthesize physics knowledge and its applications with various experimental method approaches (experimental physics) or simulation methods (theoretical physics) to solve problems scientifically (C5)
3. Able to recommend solutions to new scientific and sustainable development problems relevant to physics and its applications collaboratively and comprehensively using interdisciplinary, multidisciplinary and/or transdisciplinary approaches (C5)
4. Able to integrate scientific methods and problem-solving strategies in any professional field (C4)
5. Able to evaluate the latest relevant international research to develop an advanced understanding of scientific progress in one field of physics (C6)

6. Able to develop solutions to problems through scientific research in one of the fields of Physics and Physics Applications by complying with guidelines, ethics, safety, and considering environmental impacts (C6)
7. Able to produce valuable original insights, methods, knowledge, and technology related to Physics and Physics Applications to contribute to industry and society (C6)
8. Able to manage research and development projects with high competence in communication and teamwork (C6)
9. Able to lead a research and development team to realize targets in accordance with the objectives, strategies, and tasks set (C4)
10. Able to compile research manuscript reports systematically and clearly in the form of dissertation books or international or national publications (C6)
11. Able to create innovative, tested, and original works as a result of research work in international or national academic forums (C6)

The following **curriculum** for the **Doctoral programme in Physics** is presented:

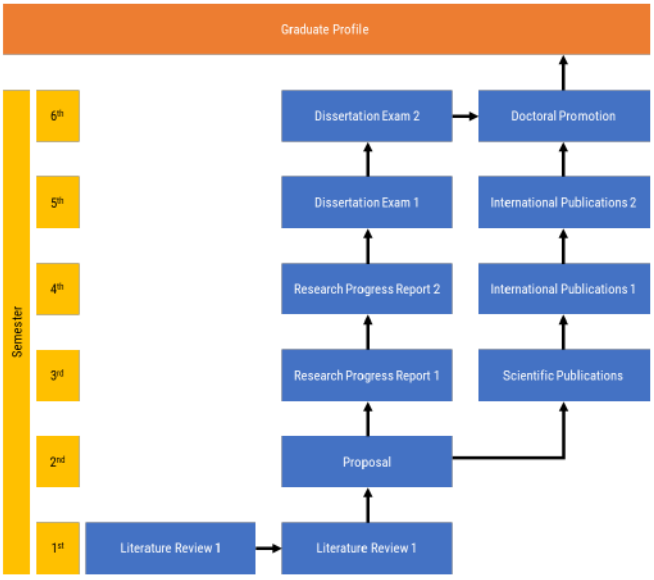


Figure 2. Curriculum Structure of Doctoral Program in Physics by Research

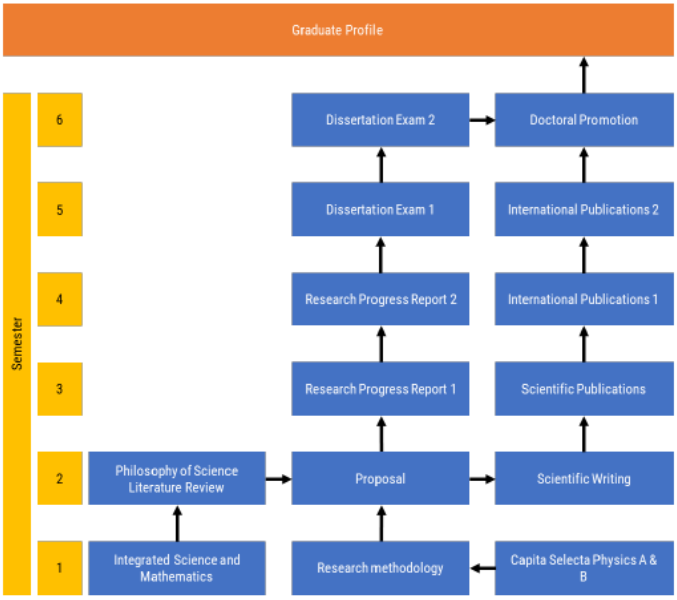


Figure 3. Curriculum Structure of Doctoral Program in Physics by Course

According to the university's website, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Doctoral programme in Material Science**:

Objectives

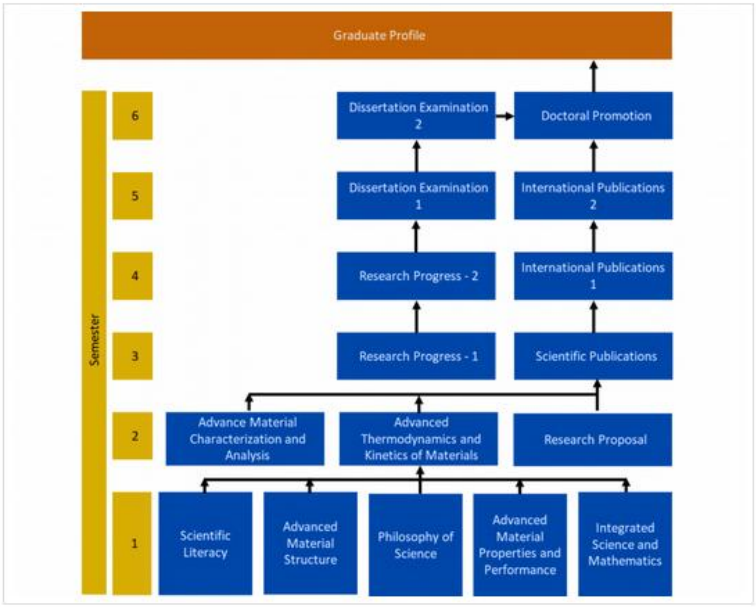
1. To produce doctors of materials science who can critically evaluate the latest developments in materials science and technology.
2. To produce doctors of materials science who can identify and analyze problems in the field of materials science and are able to formulate scientifically responsible solutions through a multidisciplinary approach and are beneficial to humanity.
3. Producing doctors of materials science who can manage, lead and develop experimental research methods and/or material modeling that pay attention to ethics, safety, environmental and socio-economic aspects.
4. To produce doctors of materials science who can produce innovative and original research work in the form of materials engineering, processing methods and/or new materials analysis techniques that are recognized by the national and international materials science community.

Learning Outcomes

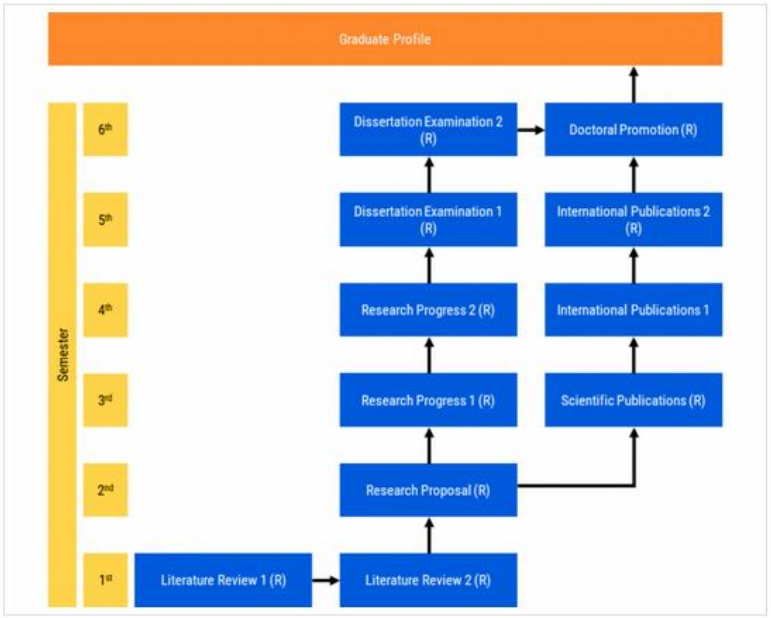
1. Able to construct an integrated relationship between structure, properties, processing, and performance of material systems. (K)
2. Able to identify and analyze problem field materials science and capable compile solution responsible solution answer in a way scientific , with notice ethics , environment and social economy. (K)
3. Able to design and implement experimental research methods and mathematical modeling that are ethically academically responsible, analyze data critically and systematically and draw conclusions.(S)
4. Able to create and design new materials, processing methods and material analysis techniques and material product innovations by paying attention to humanities values that are beneficial for the development of materials science, industry and society in general.(S)
5. Able to apply draft material science in breakdown problem application complex materials industry through approach multidisciplinary that pays attention to aspect safety , social and ethics (C)

The following **curriculum** for the **Doctoral programme in Material Science** is presented:

By-Course-Research Programme



By-Research Programme



According to the university's website, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Doctoral programme in Chemistry:**

Objectives

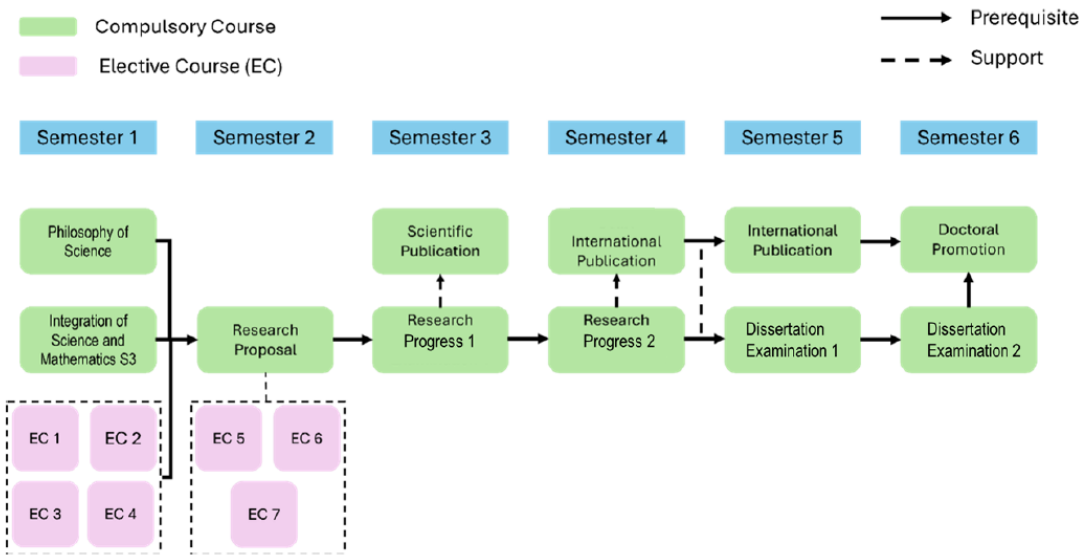
1. Organizing a quality and reputable chemistry doctoral education program so as to gain recognition at the regional and international levels.
2. To produce doctor of chemistry graduates with competence in chemistry and its applications focusing on energy, environment, and health, who are competitive at the national and international levels.
3. Comprehensively correlate the scientific fields of chemistry in order to solve problems in society through an inter, multi, and/or transdisciplinary approach.

Learning Outcomes

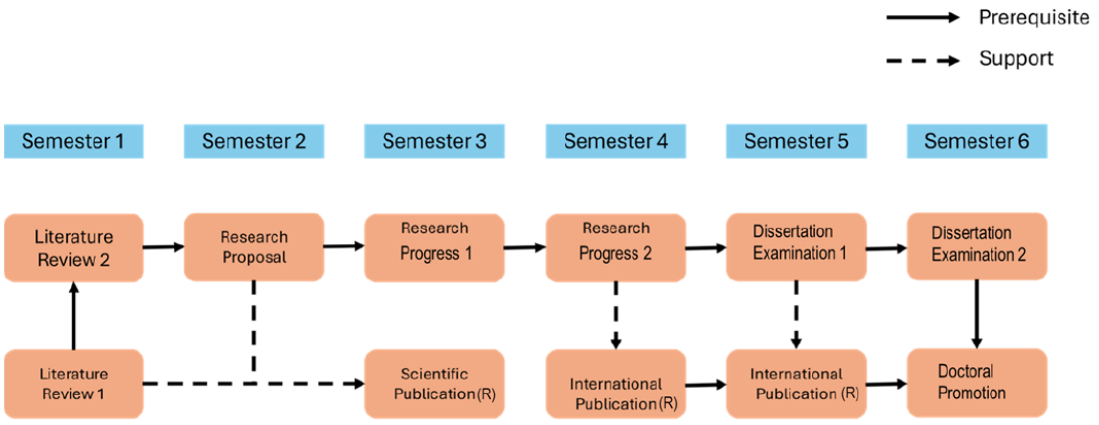
1. Able to compile knowledge and technology, in the field of chemistry or professional practice through research to produce creative, original, and tested work.
2. Able to compile scientific and technological arguments and solutions based on critical chemical views of facts, concepts, principles, or theories through inter, multi, and transdisciplinary approaches that can be scientifically accounted for and academic ethics.
3. Able to communicate knowledge, technology, and understanding of Chemistry in designing innovative and quality products or systems in applications in the fields of energy, health, environment, and food safety through conventional and online media that support independent professional development and lifelong learning.
4. Able to construct a research road map with an interdisciplinary, multidisciplinary, or transdisciplinary approach independently and objectively, based on a study of the main objectives of chemistry research and nationally and internationally recognized publications.

The following **curriculum** for the **Doctoral programme in Chemistry** is presented:

By-Course-Research



By-Research Track



According to the university's website, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Doctoral programme in Biology:**

Objectives

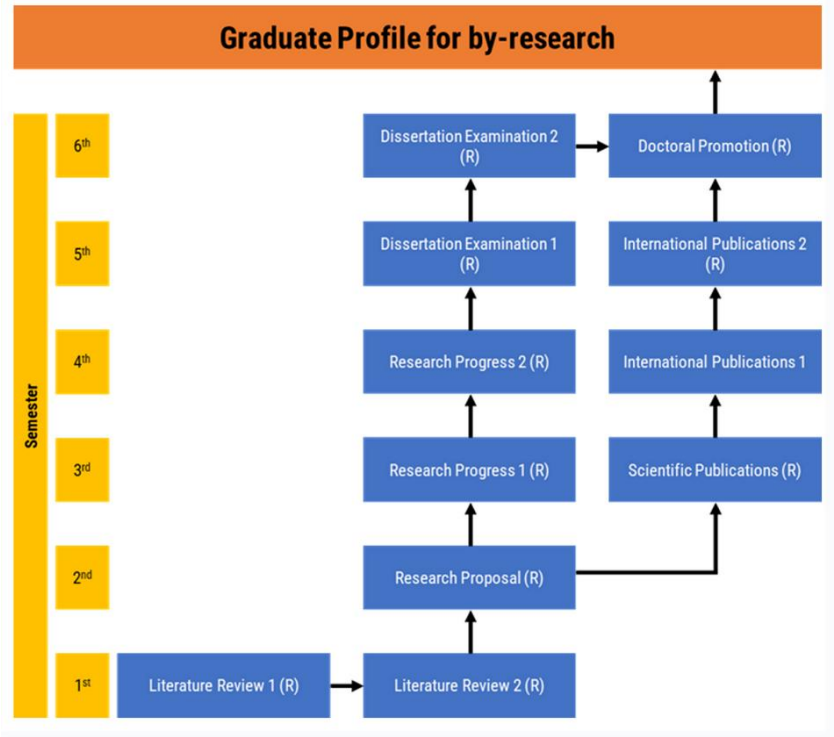
1. To produce a doctoral who is professional, have ethic, honesty, integrity, and social responsibility.
2. To produce a doctoral who competence in the field of biology to manage and utilize biodiversity in a sustainable manner.
3. To produce a doctoral who is able to design, manage, and develop innovative research with a transdisciplinary approach in the field of conservation and biodiversity prospecting.
4. To produce a doctoral who is able to communicate research results to the wider community and play a role in the scientific community.

Learning Outcomes

1. Able to think critically, creatively, innovatively, and have integrity and intellectual curiosity to solve problems at the individual and group level (K).
2. Able to design and manage research with the latest knowledge both independently and collaboratively (S)
3. Able to communicate quality research results through publications and dissemination in scientific meetings (C)
4. Able to conduct the latest research with a transdisciplinary approach to produce original works that are beneficial to society (C).

The following **curriculum** for the **Doctoral programme in Biology** is presented:

By-Research programme



By-Course-Research programme