AQAS

AGENTUR FÜR
QUALITÄTSSICHERUNG DURCH
AKKREDITIERUNG VON
STUDIENGÄNGEN E.V.

EXPERTS' REPORT

SCIENCE EDUCATION (BACHELOR OF EDUCATION)

SCIENCE EDUCATION (MASTER OF EDUCATION)

SCIENCE EDUCATION (DOCTORATE OF EDUCATION)

BIOLOGY EDUCATION (BACHELOR OF EDUCATION)

BIOLOGY (BACHELOR OF SCIENCE)

Universitas Pendidikan Indonesia (UPI)

February 2021

HEI	**Universitas Pendidikan Indonesia (UPI)**

Programme	**Science Education**
Degree	**Bachelor of Education (S.Pd.)**
Extent	145 SKS
Length of studies	8 semesters
Language	English

Concept accreditation	☐
First-time international accreditation	☒
No. reaccreditation	-

Programme	**Science Education**
Degree	**Master of Education (M.Pd.)**
Extent	36-48 SKS
Length of studies	4 semesters
Language	Indonesian

Concept accreditation	☐
First-time international accreditation	☒
No. reaccreditation	-

Programme	**Science Education**
Degree	**Doctorate of Education (Dr.)**
Extent	43-55 SKS
Length of studies	6 semesters
Language	Indonesian

Concept accreditation	☐
First-time international accreditation	☒
No. reaccreditation	-

Programme	**Biology Education**
Degree	**Bachelor of Education (S.Pd.)**
Extent	146 SKS
Length of studies	8 semesters
Language	Indonesian

Concept accreditation	☐
First-time international accreditation	☒
No. reaccreditation	-

Programme	**Biology**
Degree	**Bachelor of Science (S.Si.)**
Extent	146 SKS
Length of studies	8 semesters
Language	Indonesian

Concept accreditation	☐
First-time international accreditation	☒
No. reaccreditation	-

Responsible agency	AQAS e.V.
Responsible consultant(s)	Alexandre Wipf / Dr. Melanie Brück

Content

DECISION OF THE AQAS STANDING COMMISSION

ON THE PROGRAMMES

- **"SCIENCE EDUCATION" (BACHELOR OF EDUCATION)**
- **"SCIENCE EDUCATION" (MASTER OF EDUCATION)**
- **"SCIENCE EDUCATION" (DOCTORATE OF EDUCATION)**
- **"BIOLOGY EDUCATION" (BACHELOR OF EDUCATION)**
- **"BIOLOGY" (BACHELOR OF SCIENCE)**

OFFERED BY UNIVERSITAS PENDIDIKAN INDONESIA (UPI), INDONESIA

Based on the report of the expert panel and the discussions of the AQAS Standing Commission in its 12th meeting on 21 February 2022, the AQAS Standing Commission decides:

1. The study programmes "**Science Education**" (**Master of Education**) and "**Science Education**" (**Doctorate of Education**) offered by **Universitas Pendidikan Indonesia, Indonesia** are accredited according to the AQAS Criteria for Programme Accreditation (Bachelor/Master) and the AQAS Criteria for Doctoral Programme Accreditation (PhD).

   The study programmes comply with the requirements defined by the criteria and thus the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the European Qualifications Framework (EQF) in their current version.

2. The study programmes "**Science Education**" (**Bachelor of Education**), "**Biology Education**" (**Bachelor of Education**) and "**Biology**" (**Bachelor of Science**) offered by **Universitas Pendidikan Indonesia, Indonesia** are accredited according to the AQAS Criteria for Programme Accreditation (Bachelor/Master).

   The accreditations are conditional.

   The study programmes essentially comply with the requirements defined by the criteria and thus the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and the European Qualifications Framework (EQF) in their current version. The required adjustments can be implemented within a time period of twelve months.

3. The condition has to be fulfilled. The fulfilment of the condition has to be documented and reported to AQAS no later than **28 February 2023**. The confirmation of the condition might include a physical site visit within the time period of twelve months.

4. The accreditation is given for the period of **six years** and is valid until **30 September 2028**.

Condition for Science Education (Bachelor), Biology Education (Bachelor), Biology (Bachelor):

1. Additional evidence regarding the appropriateness of facilities used in the Bachelor programmes Science Education/IPSE, Biology Education and Biology, especially laboratories and equipment, is required.

The following **recommendations** are given for further improvement of the programmes:

For all programmes:

1. It is recommended to increase the number of publications in (international) peer-reviewed journals and to strengthen the required support for both staff and students of all programmes.
2. It is recommended to clearly communicate all quality assurance policies to the students, e.g. by publishing them on the university website.
3. It is recommended to regularly update all quality assurance policies, especially the policies on academic integrity.
4. It is recommended to close the feedback loop by providing information to the students on the changes carried out in the courses based on the feedback the students have provided, e.g. by publishing the results on each programme's website.
5. It is recommended to increase the analysis of alumni's career progression and make the results available to current students.
6. UPI is encouraged to explore additional mechanisms of student involvement in quality assurance, e.g. by giving the Student Board/Student Representative Council a more active role in quality assurance and curriculum development processes and/or in the monitoring of student workload and the complaints system.
7. UPI is encouraged to foster the application of inquiry learning and creative/critical thinking in and outside the classroom.
8. It is recommended to strengthen the objectivity of the complaint procedures by, e.g., establishing an "examination control committee" that might enforce the defined quality criteria regardless of sensitivities of students or of lecturers.
9. It is recommended to introduce an additional format of academic advising/mentoring next to the role of the academic advisor, e.g. peer counselling.

Additionally for "Science Education" (Bachelor):

10. It is recommended to further strengthen the monitoring system of the workload of the students and the support mechanisms for projects conducted within courses.
11. It is suggested to increase the number of chemistry courses within the curriculum.
12. It is recommended to strengthen the connection between community service projects and the related issues of international discussions, e.g. by linking to the implementation of the Sustainable Development Goals (SDGs) in the topics of the projects.
13. It is recommended to gain more international partners including additional cooperation opportunities with schools abroad and to establish more exchange programmes.
14. It is suggested to explicitly align the curriculum with specific international school curricula for science.

Additionally for "Science Education" (Master & Doctorate):

15. It is recommended to increase the number of international research, teaching and learning collaborations, including student participation.

Additionally for “Biology Education” (Bachelor):

16. It is suggested to switch some of the elective courses, e.g., “School Biology Practicum” and “Inclusive Education”, to mandatory courses.
17. It is suggested to offer an introduction to international curricula used in schools, e.g. as an elective in the curriculum on specific teaching methods or subject-specific curriculum management.

Additionally for “Biology” (Bachelor):

18. It is recommended to put more emphasis on genetics, microbiology, biotechnology, etc. in the curriculum.
19. It is strongly suggested to place the course “Evolution” earlier in the curriculum and to raise the number of credits allocated to it.
20. It is strongly recommended to promote the (international) research performance of the lecturers in the fields of biology.

With regard to the reasons for this decision the Standing Commission refers to the attached assessment report.

EXPERTS' REPORT

ON THE PROGRAMMES

- **"SCIENCE EDUCATION" (BACHELOR OF EDUCATION)**
- **"SCIENCE EDUCATION" (MASTER OF EDUCATION)**
- **"SCIENCE EDUCATION" (DOCTORATE OF EDUCATION)**
- **"BIOLOGY EDUCATION" (BACHELOR OF EDUCATION)**
- **"BIOLOGY" (BACHELOR OF SCIENCE)**

OFFERED BY UNIVERSITAS PENDIDIKAN INDONESIA (UPI)

Visit to the university: 15, 16, 17, 23, 24 November 2021

Panel of Experts:

Prof. Dr. André Bresges	University of Cologne, Faculty of Mathematics and Natural Sciences, Institute of Physics Education
Prof. Dr. Sabine Fechner	University of Paderborn, Faculty of Science, Department of Chemistry, Chemistry Education Group
Prof. Dr. Matthias Wilde	Bielefeld University, Faculty of Biology, Research Group Biology Education – Zoology & Human Biology
Mr. Dendy Permana	MYP Science and SVP Diploma Biology Teacher, Bekasi / Indonesia (labour market representative)
Mr. Albrecht Bloße	Student at the University of Leipzig (student expert)

Coordinator:

Alexandre Wipf, Dr. Melanie Brück	AQAS, Cologne, Germany

I. Preamble

AQAS – Agency for Quality Assurance through Accreditation of Study Programmes – is an independent non-profit organisation, supported by more than 90 member institutions, both higher education institutions (HEIs) and academic associations. Since 2002, the agency has been accredited by the German Accreditation Council (GAC). It is therefore a notified body for accreditation of higher education institutions and programmes in Germany.

AQAS is a full member of ENQA and also listed in the European Quality Assurance Register for Higher Education (EQAR) which confirms that our procedures comply with the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG), on which all Bologna countries agreed as a basis for internal and external quality assurance.

AQAS is an institution founded by and working for higher education institutions and academic associations. The agency is devoted to quality assurance and quality development of both academic studies and teaching in Higher Education Institutions. The activities of AQAS in accreditation are neither restrained to specific academic disciplines or degrees nor to a certain type of Higher Education Institution

II. Accreditation procedure

This report results from the external review of the programmes in Science Education (Bachelor of Education), Science Education (Master of Education), Science Education (Doctorate of Education), Biology Education (Bachelor of Education) and Biology (Bachelor of Science) offered by Universitas Pendidikan Indonesia (UPI).

1. Criteria

The programme is assessed against a set of criteria for accreditation developed by AQAS. The criteria are based on the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) 2015. To facilitate the review each criterion features a set of indicators that can be used to demonstrate the fulfilment of the criteria. However, if single indicators are not fulfilled this does not automatically mean that a criterion is not met. The indicators need to be discussed in the context of the programme since not all indicators necessarily can be applied to a programme.

2. Approach and methodology

The initialisation

The university mandated AQAS to perform the accreditation procedure in October 2020.

The university produced a Self-Evaluation Report (SER). In March 2021, the institution handed in a draft of the SER together with the relevant documentation of the programmes and an appendix.

The appendix included e.g.:

- Overview over statistical data of the student body (e.g. number of applications, beginners, students, graduates, student drop-outs).
- CVs of the teaching staff/supervisors
- Information on student services
- Core information on the main library
- Academic regulations

AQAS checked the SER regarding completeness, comprehensibility and transparency. The final version of the SER was handed in September 2021.

The accreditation procedure was officially initialised by a decision of the AQAS Standing Commission on 31 May 2021.

The nomination of the panel of experts

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective discipline/s, the labour market and students are involved. Furthermore, AQAS follows principles for the selection of experts of the European Consortium for Accreditation (ECA).

The Standing Commission nominated in July 2021 the before mentioned expert panel. AQAS informed the university about the members of the expert panel and the university did not raise any concerns against the composition of the panel.

The preparation of the site visit

Prior to the site visit, the experts reviewed the SER and submitted a short preliminary statement including open questions and potential needs for additional information. AQAS forwarded these preliminary statements to the university and to the panel members in order to increase transparency in the process and the upcoming discussions during the site visit.

The site visit

After a review of the Self Evaluation Report, an online site visit to the university took place on 15, 16, 17, 23 and 24 November 2021. The experts interviewed different stakeholders, e.g. the management of the HEI, the programme management, teaching and other staff, as well as students and graduates, in separate discussions and consulted additional documentation as well as student work. The visit concluded by the presentation of the preliminary findings of the group of experts to the university's representatives.

The report writing

After the site visit had taken place, the expert group drafted the following report, assessing the fulfilment of the AQAS criteria for the programme accreditation. The report included a recommendation to the Accreditation Commission. The report was sent to the university for comments.

The decision

The report, together with the comments of the university, forms the basis for the AQAS Standing Commission to take a decision regarding the accreditation of the programmes. Based on these two documents, on 21 February 2022 the Standing Commission took its decision on the accreditation. AQAS forwarded the decision to the university. The university had the right to appeal against the decision or any of the imposed conditions.

In March 2022, AQAS published the report and the result of the accreditation as well as the names of the panel of experts.

III. General information on the university

Universitas Pendidikan Indonesia (UPI) is a multi-campus university, whose main campus is located in Bandung, West Java, Indonesia. The university was founded in 1954 as a teacher education college and has since then been further expanded and developed into its current status as a state university. UPI offers a range of Bachelor's, Master's and doctoral programmes for both teacher education and other employment fields on 6 campuses. UPI is composed of 8 faculties and 1 postgraduate school. In total the university offers 164 programmes to about 34,000 students (March 2021).

According to UPI, the university strives to implement a *Tri dharma* of higher education, that is education, research, and community service interrelated. The research aims to develop educational sciences, educational disciplines, and other discipline programmes in a cross-fertilisation approach. In its Strategic Plan 2021-2025 UPI defines six policies for its development: a) providing and developing education which is oriented to excellence and equity and upholds diversity; b) developing and disseminating superior scientific research results and educational policies and contributing to the resolution of strategic issues at national, regional and international levels; c) organising and developing community service to empower the community; d) organising and developing student guidance to improve the quality of graduates and increase networking and empowerment of alumni roles; e) developing the university's resources capacity and its efforts in supporting the implementation of the *Tri dharma* to increase welfare and excellence of the university; and f) developing a healthy and accountable university governance as an autonomous university based on an integrated information system.

Educational science study programmes aim at training teachers for specific subjects at early education, primary education and secondary education levels as well as non-teaching staff. The Bachelor study programmes to be accredited are offered by the Faculty of Mathematics and Science Education (FMSE), the Master's and doctoral programmes are offered by the School of Postgraduate Studies (SPS). At the faculty there are 2,380 students enrolled in a total of 11 study programmes in 5 departments. The school of postgraduate studies is responsible for 25 Master's programmes and 17 doctoral programmes. A chairperson / head of study programmes is designated for each programme.

IV. Assessment of the study programmes

1. Quality of the curriculum / Aims and structure of the doctoral programme

Bachelor/Master Degree	Doctoral Degree
The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date with relation to the relevant field. The design of the programme supports achievement of the intended learning outcomes. *The academic level of graduates corresponds to the requirements of the appropriate level of the European Qualifications Framework.* *The curriculum's design is readily available and transparently formulated.* *[ESG 1.2]*	*The intended learning outcomes of the programme are defined and available in published form. They reflect both academic and labour-market requirements and are up-to-date with relation to the relevant field. The design of the programme supports the achievement of the intended learning outcomes.* *The academic level of graduates corresponds to the requirements of the appropriate level of the national qualifications framework or the European Qualifications Framework.* *The curriculum's design is readily available and transparently formulated.*

Overarching aspects

Description

UPI uses a local credit system for the tertiary education system in Indonesia. 1 credit (called Semester Credit Unit or SKS) covers 45 study hours per semester in the undergraduate programmes, 75 study hours per semester in the graduate programmes. For each semester a maximum of 22 SKS can be reached. Programme learning outcomes are assigned to the categories of attitude, knowledge, general skills and specific skills. In the framework of the nationwide policy of Independent Campus, students can take courses and complete periods of study, internships, community work and/or independent projects outside of their study programme, faculty or university for up to three semesters in their undergraduate studies.

Science Education Bachelor's programme

Description

The Science Education Bachelor's programme – also titled International Program on Science Education or IPSE – is offered in English. Graduates of the programme should become science teachers using the medium of English. Students can also qualify to become laboratory or research assistants.

The programme covers 8 semesters and 145 credits. It is aligned to level 6 of the Indonesian National Qualification Framework (KKNI). According to UPI, the curriculum has been developed taking into consideration national regulations as well as recommendations from the Indonesian Association of Science Educators. The programme leaders have defined ten programme learning outcomes. Students should know about science content knowledge and pedagogical knowledge in order to solve problems in science learning as well as integrate science content knowledge, pedagogical knowledge, and technological knowledge into technological pedagogical content knowledge (TPACK) and apply it to science learning. Further, they should be able to solve science education problems and develop creative innovations in science teaching and learning through research as well as apply knowledge and expertise to plan as well as manage resources, and evaluate the implementation of programmes under their responsibility.

The curriculum is composed of general university-wide compulsory courses (14 credits), professional foundation courses/educational courses (8 credits), faculty competency courses linked to professional competency courses (total of 18 credits), concentration competency courses (91 credits), optional courses (10 credits) as well as a teaching internship (4 credits). In the final semester, students complete a research paper and take their thesis defense.

Experts' Evaluation

The expert group agrees that the curriculum is very well structured, and the planning is suitable to achieve the desired outcome. Desired qualifications to be achieved during the programme are presented as intended learning outcomes. They are both subject-specific and interdisciplinary in nature. The intended learning outcomes are up to date according to current developments in the academic/scientific field and the labour market and are shown to be appropriate – they correspond to the appropriate Bachelor level. This was indicated by information from the labour market representatives, but also became very clear when discussing pedagogical and research topics with the students in the group discussion.

The curriculum covers a broad range of scientific content areas first. In a later stage, students are expected to integrate and further develop their knowledge from different scientific content areas and connect it to the domain of Pedagogical Content Knowledge and TPACK. The virtual site visit made clear that this takes place predominantly in the context of Science and Teaching labs. This makes the programme outstanding in its

connection between science practice as conducted in research, and pedagogical practice as needed in schools.

UPI has a mature process in place to gather quantitative data on students' workload as indicated by the documentation provided to the experts. Nevertheless, the expert group recommends further strengthening of the monitoring system with regard to student workload which considers not only quantitative but also qualitative data (obtained through focus group interviews for example) and installing a support mechanism for projects conducted within the courses **[Finding 1]**.

With regards to the curriculum, the experts suggest that the representation of chemistry courses be reflected upon as they appear underrepresented at the moment when compared to the number of physics and biology courses **[Finding 2].**

During the virtual site visit, deep insights were gathered into the *Tri dharma* approach, the joint conduct of research, teaching, and community service. The panel was convinced that *Tri dharma* was put into practice in a sufficient way. All teaching staff and also students are involved in the teaching process, every teacher has a roadmap to improve his or her research, and research is used as an instrument to enhance community service. Moreover, community engagement is monitored and credited as part of the workload, and a matching fund from the government exists. With the rising importance of community service as a "Third Mission" in universities internationally, UPI is one step ahead with its *Tri dharma* approach. It was, however, not clear how the university ensures that the projects conducted align 1. with the actual need of the community, 2. with the intended learning goals of the schools in a broad sense, and 3. with current international developments that are relevant for an International Program for Science Education. Therefore, the expert group recommends to further strengthen the connection between community service projects and the related issues of international discussions, e.g. by linking to the implementation of the Sustainable Development Goals (SDG) in the topics of the projects **[Finding 3]**. Furthermore, the expert group recommends maintaining a high level of collaboration with teachers from local schools to keep the projects connected to the needs and capabilities of schools **[Finding 4]**. Also, the expert group recommends looking for more international partners including additional cooperation opportunities with schools abroad and establishing more exchange programmes **[Finding 5]**.

During the site visit it became clear that the university curriculum is well aligned with international university curricula, e.g. the Cambridge and the Singapore Curriculum. However, it was not clear how the content that is prepared to get taught in schools aligns with international school curricula. Therefore, the expert group suggests an explicit alignment of the curriculum with specific international school curricula for science **[Finding 6]**.

Science Education Master's programme & doctoral programme in Science Education

Description

The Science Education Master's programme aims at training independent and professional science education practitioners as well as creative, innovative and reflective science education researchers. UPI indicates that eight programme learning outcomes have been defined. Students should be able to critically analyse and systematically synthesise science content and pedagogy and maintain them up to date with the latest developments as well as be able to comprehensively understand educational research methods to find solutions for science education issues. Additionally, graduates should have developed logical, critical, systematic, and creative thinking and be able to apply those in conducting and publishing interdisciplinary research studies. Graduates should also be able to manage science education research and publish the findings in national and international journals.

The programme is aligned to level 8 of the national qualifications framework. According to the information in the SER, the learning outcomes have been reviewed against feedback from employers and alumni as well as against the recommendations of the Indonesian Association of Science Educators. The programme covers 4 semesters and 36-48 credits. The curriculum is composed of postgraduate expertise area subjects (7 credits), core expertise courses (15 credits), optional expertise courses (6 credits) and a final thesis (8 credits). Students with a non-linear education background must take additional courses worth 12 credits.

The doctoral programme in Science Education covers 6 semesters and corresponds to level 9 of the national qualifications framework. Students can make use of a double degree option with Japan. The programme leaders have defined eight programme learning outcomes: Graduates should understand the strengths and weaknesses of research methods and employ suitable methods to develop innovations in science education. They should integrate a variety of learning skills, ICT competencies, and life skills into lifelong learners' personality to keep on learning and innovating. They should be able to develop innovative, outstanding and tested works on science education curricula, teaching and learning, assessment as well as research methodology. They should also be able to solve science education problems using inter-, multi-, and trans-disciplinary research. UPI has two graduate profiles for the doctoral programme: independent and professional science education practitioners and creative, innovative and reflective science education researchers.

The programme covers between 43 and 55 credits. PhD candidates can complete their programme either through a course track or a research track. In the course track, the curriculum is made up of common courses of the school of postgraduate study (7 credits), educational programme core courses (15 credits), educational programme optional courses (6 credits) and the final dissertation (15 credits). Students with a non-linear background must take four additional bridging courses (12 credits). In the research track, PhD candidates must complete basic courses (5 credits), literature studies (3 credits) and field studies (3 credits). 16 credits are assigned to the publication of research articles and 15 credits to the final dissertation. According to UPI, the potential research areas for the theses are Science Technology and Engineering (STEM), scientific literacy, higher order thinking, IT based science teaching, assessment in science education, teacher professional development, and low carbon education.

Experts' Evaluation

Both the Master's Programme of Science Education (MPSE) and the Doctorate Programme of Science Education (DPSE) represent up-to-date study programmes with reasonable desired qualification outcomes. The learning outcomes of both programmes are explicitly formulated and cover a wide range of subject-specific and interdisciplinary goals. They comprise content knowledge, pedagogical content knowledge and pedagogical knowledge with an explicit additional focus on ICT based science teaching.

The intended learning outcomes can be evaluated as appropriate based on the provided student surveys, course documentation and especially the onsite feedback from students and alumni. Especially the fact that students should have developed logical, critical, systematic, and creative thinking skills with their graduation was demonstrated by the students who gave feedback during the expert panel discussion. The documentation provided also demonstrates that the learning outcomes are updated according to current developments in the academic/scientific field and the labour market as they include issues of e.g. low carbon education, publication and collaboration in international settings and a focus on higher order thinking skills. The academic degree awarded to the graduates corresponds to the learning outcomes and the requirements of the appropriate level of the European Qualifications Framework – although the credit system is slightly different – and corresponds to the respective level of the national qualifications framework. In both degrees the achievement of the intended level of qualification can be demonstrated by examinations such as a final thesis.

All curricular elements such as modules and courses and their functions are documented. The curricular structure of the study programmes supports the achievement of the learning outcomes, especially for students from

diverse backgrounds and perspectives. The experts judge the fact that students from non-linear educational backgrounds are admitted and are accounted for in the course structure as high quality. Likewise, the fact that students have the option to pursue different tracks, such as the PhD-by-course or the PhD-by-research, were praised by the experts. However, they also strongly recommend to be aware that PhD-by-research students – just like PhD-by-course students – need to be part of research groups and are offered infrastructure (e.g., office, IT).

The curricula cover subject-specific and cross-subject and pedagogical content knowledge, as well as subject-related, methodological, and general skills such as creative thinking or problem-based learning. Curricular modifications are discussed in a transparent manner and are believed to contribute to an improvement in programme quality. Lecturers explained that they are interactively working on course improvements on the basis of the student feedback which is compulsory for students in each course. All elements of the curriculum are assigned a certain number of credits directly related to the expected workload. The total programme workload is allocated to the different courses/modules. Following the *Tri dharma* approach, students are enabled to transfer their knowledge to situations outside the university context as they are encouraged to apply their research results to educational practice.

Research criteria especially apply for DPSE where the intended learning outcomes are updated according to current developments in the academic/scientific field. The programme emphasizes high research standards by implementing collaboration with international scholars as visiting scholars in the programme and by encouraging students to conduct their research in an international research setting. However, it remains unclear to what extent each single student currently benefits from international contacts and in what way international mobility is fostered and offered to the students. Although it was explained that exchange programmes and collaborations exist, it remains unclear whether they embrace a sufficient number of students. As such, the increase of international research, teaching, and learning collaborations with student participation should be reflected upon and be increased **[Finding 7]**. Furthermore, the experts would like to encourage UPI to strengthen the support for both students and teaching staff to increase the number of publications in (international) peer-reviewed journals – this being generally valid for all programmes in the cluster **[Finding 8]**. The experts would like to stress, however, that they were very positively impressed by the quality of the two programmes as they very much focus on educational research on a high level and emphasise its implications on practice.

Finally, the supervision model, especially in the doctoral programme, was positively evaluated by the experts as students have more than one advisor. In the programme plan, students are prepared to conduct their research in a more and more independent way and are advised accordingly. However, it should also be assessed to what extent the academic supervisors continuously demonstrate the ability to publish in internationally renowned journals themselves (see above, Finding 8).

Biology Education Bachelor's programme & Biology Bachelor's programme

Description

The Biology Education Bachelor's programme and the Biology Bachelor's programme are offered by the Department of Biology of the Faculty of Mathematics and Science Education. Both programmes are aligned at level 6 of the national qualifications framework and cover 8 semesters and 146 credits. In developing the programme learning outcomes UPI states that it considered the recommendations of the Indonesian Biology Consortium and the Indonesian Biology Education Consortium as well as national regulations and feedback by stakeholders. According to the information in the SER, some classes are conducted bilingually in the Biology Education programme.

The programme leaders have defined thirteen programme learning outcomes for the Biology Education programme. Graduates should master concepts, principles, theories, laws and biological processes as well as their application to solve Biology education problems and they should master curriculum, learning, evaluation/assessment and research methods to support problem solving in biology education. Furthermore, they should be able to integrate learning and innovation skills, mastery of technology and information, career development, and life skills to become lifelong learners. They should have the ability to manage school laboratories by utilising science and technology and be able to make professional decisions based on data from the results of studies and research independently, collectively and collaboratively and communicate them. Graduates should become biology educators or researchers in biology education.

Students in Biology Education take university-wide general courses (14 credits), basis education courses (8 credits), faculty expertise courses (6 credits), learning expertise courses (12 credits), core subject expertise courses (80 credits), optional subject expertise courses (16 credits). They also complete a teaching internship (4 credits) and write a final thesis (6 credits). According to the SER, students concentrate in their first year on basic competencies, they develop education related competencies in their second year. In their third year, they strengthen pedagogical content knowledge, whereas in their fourth and final year they develop their understanding of advanced content and teaching competence

In the Biology programme, there are three research groups (Biosystematics and Biodiversity, Exploration and Applied Biology, Environmental Evaluation and Management) from which the students can choose and specialise in. There are eleven programme learning outcomes: Graduates should demonstrate a mastery of the concepts, principles, theories, laws and processes of biology and their application to support their profession in the field of biology as well as a mastery of basic mathematics and science to support biology science in problem solving. They should also demonstrate a mastery of the development of the latest Science and Technology in the field of biology and be capable of taking decisions professionally based on the data from biology research, independently, collectively, collaboratively, and communicatively. Graduates should also be capable of applying content design and manipulation of biology as a ground for entrepreneur development and be capable of managing information and using Science Technology and Art as a ground for self-development as a lifelong learning process. As fields of employment of the Biology graduates UPI states assistant to environment and conservation consultant, consultant to companies that work on research and development, planning consultancy and research data, data scientist, research assistant, writers/editors related to biology science for high schools or universities.

The curriculum includes 16 credits of university-wide courses, 6 credits of faculty-based professional courses, 98 credits of programme-based core professional courses, 16 credits of programme-based optional professional courses, 4 credits for an industry internship and 6 credits for the final project or research thesis. Thematically, there are general courses as well as courses in Biology Structure and function, Growth, Development and differentiation, Cell Biology and Genetics, Environmental Science, Evolution and Interdisciplinary courses.

Experts' Evaluation

In general, the study programme objectives of the Bachelor's Programme of Biology Education (BPBE) and of the Bachelor's Programme of Biology (BPB) are up to date. The documentation of the modules and courses is mostly excellent. For all courses, workload and credits are addressed very well. For the students, the structure of both programmes is described in a transparent way. The study programme objectives address subject-specific and interdisciplinary learning outcomes in exactly the right proportion. Regarding the subject-specific objectives, especially organismic biology, e.g., ecology, anatomy, systematics etc. receives particular focus - for BPBE this is reasonable. From the experts' point of view more emphasis might be placed on genetics, microbiology, biotechnology, etc. in the BPB programme. **[Finding 9]** Otherwise, the objectives are reasonable

and can be achieved during the programmes. (The described learning outcomes regarding “Attitudes” are not included in this assessment.)

Mostly, the curricular structure of the study programmes is well designed; the order of curricular elements supports the learner’s progression e.g., for BPBE the sequence of the learning expertise courses and for BPB most of the core professional courses. A point of criticism might be that the course “Evolution” is located in the 7th semester with a value of only 2 credits. This appears like the marginalisation of this central theory of biology. Evolution might provide a meaningful theoretical framework for all biological phenomena, adaptations, ecosystems, etc. Thus, the programme should consider offering the course earlier in the course of studies and allocate a higher number of credits to it **[Finding 10]**. A point of criticism for BPBE would be that the proportion of specifically biology education courses compared to biology courses is quite low. It might be considered to change some of the elective courses, e.g., “School Biology Practicum” and “Inclusive Education”, to mandatory courses **[Finding 11]**. On the positive side, within the pool of elective courses many interesting and innovative approaches are provided, e.g., for BPBE “Cognitive Psychology”, “Microteaching” or “Ecophysiology” and for BPB “Bionanotechnology”, “Biopreservation” or “Ecotourism”. For BPBE an introduction to international curricula might be added as an elective course **[Finding 12]**.

Both programmes include field trips, laboratory work and internships. Especially in these courses and in particular for BPBE, the paradigm of the academic education follows constructivist principles to a certain extent, such as student-centred and problem-oriented learning, scientific inquiry and critical thinking. Not only the students but also the alumni emphasised these principles and were very well able to illustrate an appropriate proficiency regarding these skills. The curriculum covers subject-specific and cross-subject knowledge, as well as subject-related, methodological, and general skills.

The academic degree awarded to the graduates corresponds to the learning outcomes and the requirements of the appropriate level of universities internationally, and especially in Germany. A final thesis and a final exam allow the students to demonstrate the intended level of qualification.

Conclusion

The criterion is fulfilled.

2. Procedures for Quality Assurance

Bachelor/Master Degree	Doctoral Degree
The programme is subject to the higher education institution’s policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes.	*The programme is subject to the higher education institution’s policy and associated procedures for quality assurance, including procedures for the design, approval, monitoring, and revision of the programmes.*
A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.	*A quality-oriented culture, focusing on continuous quality enhancement, is in place. This includes regular feedback mechanisms involving both internal and external stakeholders.*
The strategy, policies, and procedures have a formal status and are made available in published form to all those concerned. They also include roles for students and other stakeholders.	*The strategy, policies, and procedures have a formal status and are made available in published form to all those concerned. They also include roles for students and other stakeholders.*
Data is collected from relevant sources and stakeholders, analysed, and used for the effective management and continuous enhancement of the programme.	*Data is collected from relevant sources and stakeholders, analysed, and used for the effective management and continuous enhancement of the programme.*

[ESG 1.1, 1.7 & 1.9]	*[ESG 1.1, 1.7 & 1.9]*

Description

The university has established a quality management system based on national policies (e.g. National Standards of Higher Education) and its overall University Quality Standard. Accordingly, this system covers the areas of teaching and learning, research, community service as well as university governance. Quality assurance is mentioned in the university's Strategic Plan, it should support the accomplishment of the university's vision. Within the framework of its strategic plan the university has devised Achievement Indicators for its policies and implementation programmes. A university-wide Quality Assurance Manual has been developed. At the level of the school of postgraduate studies UPI states that quality is supported through additional units such as the Dissertation Commission for Quality Assurance or the unit for online learning development. UPI sees the establishment of an integrated information system as being integral to the establishment of quality assurance. This information system at university level should help monitor student development and enrolment; the system can be used to conduct surveys and it should facilitate online learning.

At university level a Quality Assurance Unit is tasked with the implementation of the university's quality management system, while at faculty/school level Quality Control Units have been created and at study programme level Quality Control Clusters are tasked with this role. Within the faculty there are also Course Organization Committees. Central quality assurance guidelines have been issued, covering the areas of education, research, community service, student affairs, informational system, facilities and infrastructure, human resources, planning and development, and reporting. According to the SER, study programmes should compile annual reports to measure the programme's performance in the year. Central internal quality assurance audits are carried out annually whereas external quality assurance audits are carried out every five years. Mandatory external quality assurance is carried out by the National Accreditation Agency for Higher Education of Indonesia, additional external reviews have been carried out in the framework of an ISO 9001: 2008 and ISO 9001: 2015 certification as well as with regional and international quality assurance agencies.

At the end of each course students should complete a satisfaction questionnaire. Tracer studies are carried out to gather feedback from alumni and employers. Study programmes can also organise additional focus groups, alumni networks and gatherings as well as outreach activities to gather feedback. UPI states that in the programmes to be accredited the programmes' leaders have considered the recommendations of professional associations and societies when developing and reviewing the curricula, they have also conducted benchmarking activities. According to the information in the SER, the course syllabi are reviewed and updated every semester. The Quality Control Clusters check the updates before publishing the reviewed material.

Based on the national philosophy and principles of Indonesia, UPI states in its SER that its values include non-discrimination; this is implemented through policies and also materialises through university-wide general courses in each curriculum.

Experts' Evaluation

In general, UPI has policies for quality assurance such as the policy for academic writing which includes procedures safeguarding academic integrity and prevents academic fraud within the programmes. Other policies include the lecturers' code of ethics, regulations of the academic senate, and the code of conduct for administrative and supporting personnel. However, it is suggested that all of the policies are also clearly communicated to students, for example on the university website, as they might not always be aware of the details **[Finding 13]**. Also, the experts highlight the importance on regular updates of individual policies, such as the academic integrity policy, which should always include the latest versions of international standards of academic writing (e.g. APA style, MLA style, etc) **[Finding 14]**. This would result in a higher awareness of the importance

of international standards of academic writing by the students as well as in higher acceptance of the programmes (e.g. for international cooperation) and of the graduates on an international level.

Responsibilities within the programmes and for programme elements are defined. Students and the labour market are involved in the quality assurance procedure for the programmes. It is clear that the results of the quality assurance mechanisms and evaluations are used to further develop the programmes. Via the feedback circle, feedback is provided to the lecturers, most of the feedback from the students can be analysed with the academic advisor. Academic advisors have a strong position and get the relevant feedback information. However, the results of the evaluation are not made available to the students. The experts thus recommend closing the feedback loop by providing information to the students on the changes carried out in the courses based on their feedback, e.g. by publishing the results of the evaluation on the respective programme's website **[Finding 15]**. The published results should include: course evaluation, programme evaluation, evaluation of student workload, progression and completion rates, evaluations of changing societal needs, and evaluation of the learning and support services.

Information management regarding labour market feedback includes data collection, analysis, and the dissemination of the results on the respective programme's website. Similarly, data on the duration of studies is provided. The experts recommend increasing the analysis of alumni's career progression and make the results available to current students – this would provide even more transparency **[Finding 16].**

Generally, students are involved in the governance structure of UPI through the student board / student representative council. Yet, UPI is encouraged to explore further mechanisms of student involvement in quality assurance, such as by giving the student board / student representative council a stronger and more active role in quality assurance and curriculum development **[Finding 17]**.

Unfortunately, information about the rules regarding data privacy (used in the lectures or during student group activities or in student bodies) is not available on the website. The experts would encourage UPI to provide statements on the data privacy (esp. regarding lectures) on the official website to make sure that the programmes act accordingly.

Conclusion

The criterion is fulfilled.

3. Learning, Teaching and Assessment of Students / Learning and Assessment of Students

Bachelor/Master Degree	Doctoral Degree
The delivery of material encourages students to take an active role in the learning process. *Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.* *Assessment procedures are designed to measure the achievement of the intended learning outcomes.* *[ESG 1.3]*	*The form of supervision and/or course structure is adequate and corresponds with the intended learning outcomes.* *Students are assessed using accessible criteria, regulations, and procedures, which are made readily available to all participants and which are applied consistently.* *Assessment procedures are designed to measure the achievement of the intended learning outcomes.* *[ESG 1.3]*

Description

Each programme defines the number of credits students should take each semester. Generally, there is a university-wide regulation, setting the maximum of credits that can be taken in a semester based on the achieved GPA in the previous semester. Each semester, students receive Semester Learning Plans including information on the content, learning outcomes, meetings, assessment, and literature of the courses. The information is also provided online together with learning materials.

The overall learning, teaching and assessment methods of the university are defined in the University Academic Guideline – additionally there are also Technical Guidelines for Educational Implementation at the school of postgraduate studies. Standard Operational Procedures have been defined and documented throughout university processes. These regulations include an appeals and complaints procedure regarding grades.

According to the SER, active learning strategies are at the centre of UPI's guidelines. For educational courses elements of school observations and teaching simulation are to be included in preparation of the teaching internships students take. A university-wide online learning platform has been launched to support online learning; it includes remote access to the library.

UPI states that at the Bachelor level courses and teaching use active learning and student-oriented learning, such as group presentation, group discussion, mini projects, field trips, school and industrial visits. During field studies and internships students are supervised by lecturers and practitioners. Assessment centres around individual course assessments, semester evaluations, course advancement assessment, and final programme evaluation. For each course there are mid-semester examinations and final semester examinations; assignments have to be completed throughout the semester such as laboratory reports, papers, presentations, projects, and performance evaluation. UPI indicates that examinations are aligned with the Criteria Reference Assessment and Norms Reference Assessment systems.

Lecturers in the postgraduate programmes take the role of facilitators for students learning. Critical analysis, inquiry-based learning, project-based learning, mini-research, collaborative learning, and cooperative learning, presentations, discussions, seminars, reports/actual writing, self-directed learning, practicum, and field studies are described as student-centred activities at graduate level.

UPI states that lecturers should involve students in their research activities at all levels. In the Bachelor's programme for Science Education, this takes the form of a research project on teaching activity (e.g. TPACK based teaching media, online ICT-based assessments). The programme's final project can be done through an undergraduate thesis or a non-thesis project. UPI indicates that specifically in the Biology Bachelor's programme research-based teaching is used, materials should thus combine theory and research findings. UPI also mentions research collaboration projects with industry in the programme. According to the information in the SER, research plays a more significant role at the graduate level. In the Master's programme, lecturer and students should collaborate in research activities based on the research roadmap and the research groups of the school of postgraduate studies. Specifically in the doctoral programme (research track) students should also write and submit scientific publications.

In the Master's programme, students have to complete a qualification exam, a research proposal exam as well as the thesis defence (two stages). PhD candidates have to complete similar steps with additional conditions set as to the number of already completed courses and attained grade. Before taking their dissertation defence they also have to publish a number of research articles in indexed/reputable international journals.

Experts' Evaluation

Modern international curricula emphasise the 21st century skills; among them are the so-called 4C: Creativity, Communication, Collaboration and Critical Thinking. To reach scientific excellence, and to acquire the necessary attitude to debunk myths and foster scientific thinking in the community, teaching critical thinking is essential. Modern international teaching strategies such as the *Investigative Science Learning Environment* (ISLE) by Etkina et al. were cited in theory for the IPSE, and its ideas seem to be put into practice as demonstrated during the site visit. This is very positive and advanced. It was, however, not clear how critical and independent thinking is nurtured at larger scale at UPI. Therefore, the experts encourage UPI to foster the application of inquiry learning and creative/critical thinking in and outside the classroom **[Finding 18]**. UPI could describe the 21st century skills on the teaching and learning procedure especially in terms of inquiry learning. This is because in the 21st century, students need a new set of skills to make their way in a complex and constantly evolving future (Craig 2012). The skills include creativity, critical thinking and problem solving and are needed for every citizen to survive in the 21st century (Akgündüz & Ertepınar 2015). Generally, it can be stated that the teaching and learning methods used employ a student-centred approach and are adequate for the programmes being reviewed.

The examination procedures used in the programmes provide a variety of sophisticated test formats suitable for assessing knowledge, practical skills, and competencies. However, the complaint procedures in place seem to focus on the satisfaction of the students rather than the objectivity, reliability and validity of the examination in question. Here, an "examination control committee" might be established to ensure these quality criteria regardless of sensitivities of students or of lecturers **[Finding 19].**

The exams are well coordinated, and the week in which the exams take place are written in the module description which makes it very transparent for the students to plan the timetable according to their needs. Overlapping modules and exams can thus be avoided and none of the interviewed students reported overlapping exams or courses.

Conclusion

The criterion is fulfilled.

4. Student Admission, Progression, Recognition and Certification / Legal Status, Admission and Certification

Bachelor/Master Degree	Doctoral Degree
Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification. *[ESG 1.4]*	*The institution is entitled to award a doctorate.* *Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.* *[ESG 1.4]*

Description

Student admission at UPI is based on four distinct paths: a state higher education national selection based on students' prior academic achievements, a nationwide test-based admission system, UPI's own test-based admission system, and UPI's admission path based on students' distinguished achievements.

To be admitted in the three Bachelor's programmes, students must have completed a science major in their high school, they also have to certify that they are not colour-blind and that they have the physical ability to work with laboratory equipment.

Candidates to the Science Education Master's programme must have completed a Bachelor's degree in a related discipline (UPI states that various science education subjects such as physics, chemistry, and biology as well as graduates of non-education programmes are accepted) with a GPA of at least 2.75. Candidates must also pass an academic aptitude test and an English proficiency test. Candidates for the Science Education doctoral programme must hold a relevant Master's degree with a minimum GPA of 3.00. They must complete an academic aptitude test and an English proficiency test (minimum of 500 TOEFL score). The admission decision to the graduate programmes is taken by a selection committee comprising the Rector, Directors and heads of study programmes.

Students with a non-linear background can enrol in the programmes after having taken a number of so-called bridging courses (see Chapter IV.1). The University Academic Guideline contains provisions as to the recognition of knowledge and skills. According to UPI, these provisions cover credit transfer both internally within UPI and externally with other higher education institutions. UPI indicates that students can study at another institution in Indonesia or abroad through the Independent Campus policy, which has been implemented in all three Bachelor's programmes. The school of postgraduate studies offers double degree programmes as well as summer courses / sandwich programmes. UPI lists a number of cooperations with universities and networks in the Asia-Pacific region, in Europe, the Middle East and America. In the future, students should benefit from new initiatives in the area of online courses offered by other institutions.

Upon completion of their studies, students are awarded a diploma at the relevant level, either a Bachelor, a Master or a Doctorate of Education respectively a Bachelor of Science, as well as an academic transcript and a diploma supplement.

Experts' Evaluation

Formal requirements for admission are clearly defined and available in published form. They are integrated in the general admission system of UPI departments (e.g., SPS). Information on requirements, procedures and registration fees is published on the respective websites. Specific prerequisites relevant for an individual study programme (e.g., language skills, prior completion of degrees, majors at high school) reflect substantive qualities needed for a successful completion of the programme and are included in the published admissions criteria. UPI administers proficiency and skills tests in the respective domain and in English as a Foreign Language (TOEFL) which is in line with the demands of the programmes. The doctoral programme also uses a selection committee to interview respective students for admission. The selection procedure is transparent and makes it possible to select qualified students in programmes where the number of applicants surpasses the number of students to be enrolled (e.g., DPSE). A decrease in applicants in some programmes was justified in a reasonable way during the site visit. National public funding (scholarships) is available for selected students.

UPI documents data on the admission procedure which was available to the expert panel in a transparent way. Prior learning is accounted for especially for non-linear educational backgrounds. For example, students from science degrees can enrol in MPSE and are offered bridging courses. Graduates receive documentation explaining the qualification gained, including context, level, and status of the studies (e.g., diploma supplement).

In the PhD programme (DPSE), the institution is legally entitled to award doctorates. The programme is transparently structured as a pathway to gain the PhD thesis at the end of the studies. Entry requirements are a Master's degree in a relevant field as well as an academic aptitude test and a language proficiency test. Applicants to the PhD-by-research are selected based on their research plan. The process to be awarded the

doctoral degree is clearly defined and leaves options for students from diverse backgrounds and perspective – which was positively evaluated by the experts.

Conclusion

The criterion is fulfilled.

5. Teaching Staff / Academic Level of Supervisory Staff

Bachelor/Master Degree	Doctoral Degree
The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes. *Staff involved with teaching is qualified and competent to do so.* *Transparent procedures are in place for the recruitment and development of staff.* *[ESG 1.5]*	*The composition (quantity, qualifications, professional and international experience, etc.) of the staff is appropriate for the achievement of the intended learning outcomes.* *Staff involved with teaching is qualified and competent to do so.* *Transparent procedures are in place for the recruitment and development of staff.* *[ESG 1.5]*

Description

UPI stipulates that the recruitment of teaching and academic support staff is based on government regulation as well as the relevant University Guideline. The recruitment procedure for teaching staff includes a national public selection, language competence tests, an interview and a teaching/working simulation.

The University Guideline includes policies for staff development and further qualification as well as the required minimum level of qualification for teaching at specific programme levels (e.g. lecturers in Master's and doctoral programmes should hold a doctoral degree). Teaching hours are assigned to each lecturer according to central university policy.

At the Faculty of Mathematics and Science Education, there are 202 lecturers and 68 supporting staff. The School of Postgraduate Studies consists of 326 academic staff and 49 supporting staff.

UPI indicates that 16 lecturers are involved in the Science Education Bachelor's programme, 8 of which are primarily attached to other study programmes. Four of the lecturers are professors. In the last five years, 5 external guest lecturers have been involved in the programme.

26 full-time lecturers teach in the Science Education Master's programme, of which 13 are professors. In the doctoral programme, there are 16 full-time lecturers. 8 external guest lecturers have been involved in both the Master's and doctoral programmes in the past five years.

At the Department of Biology, there are 3 professors of Science Education and 3 professors of Biology, 15 associate professors, 13 senior lecturers. UPI lists a total of 35 lecturers in both programmes, they have been assisted by 10 external guest lecturers in the past five years.

According to the SER, there are professional development programmes at faculty level. This includes activities aimed at improving English competence, improving the quality of research proposals and community service and supporting the preparation of scientific articles or participating in scientific seminars. Workshops on e.g. micro-learning or on creating interactive learning media have been offered at the faculty. UPI states that lecturer exchange programmes are possible within the framework of the Independent Campus policy. Teaching

staff is encouraged to conduct research with the aim of contributing to improve both the curricula and teaching methods. UPI lists a number of international research cooperation activities in the Asia-Pacific region, in Europe and the Middle East that have been carried out by staff.

Experts' Evaluation

Generally, the experts are satisfied with the established recruitment procedures at UPI which are transparent and rely on national guidelines and regulations. UPI provided information on the opportunities given to staff (academic and non-academic) to develop their competencies further when teaching at UPI. This included workshops and trainings provided inhouse, by external organisation as well as the participation in subject specific conferences (also abroad) when considering professional development beyond teaching methods for example. This is satisfactory in the view of the experts. At the same time, the experts suggest providing further support to staff, in e.g. increasing the number of internationally published peer-reviewed papers (see Chapter IV.1, Finding 8).

The expert group discussed the required resources with regard to the capacity of the institution for all five study programmes. All human resources involved in teaching within the Science Education Bachelor's programme are very well qualified. This is documented, including their academic and other relevant qualifications. Teaching staff is appropriately qualified for the achievement of all intended learning outcomes, which was confirmed during the panel discussions. The expert group was positively impressed by the international vision and experience of the teaching staff. The number of teaching staff and teaching hours are documented and they are sufficient. The overall workload of staff (teaching, administration, research) is appropriate for the delivery of the programme. The experts also consider that teaching staff is sufficient and possesses the appropriate level of qualification for both the Science Education Master's programme and the Science Education doctoral programme.

The human resources involved in teaching in the Biology Education and the Biology programme are of an adequate number. Their workload is appropriate. For Biology Education there are lecturers of solid qualification and of satisfactory research output and lecturers that can be regarded as outstanding experts in this field. In summary, for BPBE the academic qualification of the body of lecturers can be considered as very satisfactory and appropriately research-oriented. For Biology there are lecturers of solid qualification and of satisfactory research output without lecturers that can be regarded as outstanding experts in their field. For the scientific orientation of a Bachelor programme in biology this might be just enough. Still, for BPB it is strongly recommended to promote the (international) research performance of the lecturers in the fields of biology **[Finding 20]**. Maybe, an expansion of the staff with some outstanding experts in specific domains of biology might be considered.

Conclusion

The criterion is fulfilled.

6. Learning Resources and Student Support / Support and Research Environment

Bachelor/Master Degree	Doctoral Degree
Appropriate facilities and resources are available for learning and teaching activities. *Guidance and support is available for students which includes advice on achieving a successful completion of their studies.*	*Guidance and support are available for students which include advice on achieving a successful completion of their studies.* *Appropriate facilities and resources are available for learning and research activities.*

[ESG 1.6]	*[ESG 1.6]*

Description

UPI is a state university funded centrally by the government and through tuition fees charged in each programme. UPI lists a Micro-teaching Lab, a Language Center with Language Laboratory, information technology facilities including a computer centre and a computer education centre as part of the university-wide infrastructure. Conference, lecture and seminar rooms are provided by the faculty / school of postgraduate studies. According to the information in the SER, students also have access to working rooms and areas for common work. Next to the central Library there is a Post Graduate School Library. Standard operating procedures have been defined to ensure the maintenance of facilities and infrastructure.

UPI indicates in its SER that the faculty's laboratories are equipped with i.a. High-Performance Liquid Chromatography, Atomic Absorption Spectrophotometer, UV/VIS Spectrophotometer, Gas Chromatography-Mass Spectroscopy. Students also have access to a Botanical Garden. Four laboratories (Biology, Chemistry, Physics, and Multimedia-Physics) are used in the Science Education Bachelor's programme. For the Biology and Biology Education programmes UPI lists five laboratories for practical work (Plant Structure, Animal Structure, Physiology, Ecology, and Microbiology including Genetics) as well as two laboratories for research (Biotechnology and Environment) and a Botanical Garden.

Students are assigned one specific academic advisor at the beginning of their studies, who provides subject-specific counselling regarding courses or study progress. Graduate students are guided by an academic supervisor, who also acts as Master's thesis supervisor. PhD candidates are assigned dissertation supervisors/promoters.

The university offers a range of generic support services as well as specific services to students with special needs. The Student Service Divisions, the Guidance, Counselling, and Career Development unit as well as the Office of International Education Relation are listed as possible contact points for students. UPI mentions a range of possible scholarships for students. Career guidance is also provided at faculty-level before graduation. The overall infrastructure of the university is considered to be ready for a more diverse student population. Central as well as programme-specific orientation activities are offered to new students at the beginning of each programme. Further support is provided by students' associations according to the SER such as information on field work for the Biology Education and Biology programmes.

Experts' Evaluation

Students and lecturers expressed their satisfaction with the equipment and information provided by the university. The description and requirements for courses are published and are transparent for students' needs. They provide information while studying and also before choosing specific subjects. The information presented in the scripts satisfied the experts, there are course descriptions, information on the allocated credits, information on each meeting in each course in the semester etc.

Every student is assigned an academic advisor, who will meet them once every semester at minimum and can be contacted if there are problems regarding their studies. The academic advisor seems to also be involved in problem-management and in complaint management, being the first person the students should turn to. Therefore, the students might/would tend to choose the academic advisor, who they believe will solve problems. This direct approach is deemed very useful by the expert panel. The students' individual academic advisor helps them to get orientation within their study programme and their life on campus. This relationship seems to be of great relevance for the students, and it might play an important role for the impressive rate of successful graduation in all the programmes. The academic advisor has access to the academic information system, monitors the progression of a student, and the academic advisor might even contact the parents of a student.

The experts believe that here, data privacy might be an issue. Furthermore, there might be the possibility that patronisation and paternalism gains the upper hand in the relationship between the academic advisor and a student instead of fostering student-centred and problem-oriented learning and facilitating critical thinking (see Chapter IV.3, Finding 18). Therefore, a careful balance between orientation for a student and self-determination of a student needs to be aimed for. Conceivably, an additional format of peer counselling might be encouraged to establish a greater diversity and less hierarchical structures of mentoring opportunities for the students **[Finding 21]**. There could also be some change to the complaint mechanisms, which would exclude the academic advisor, when the student has a problem with his academic advisor directly (see Chapter IV.3, Finding 19).

There are several additional support structures for new students as well as for exchange students, including a buddy programme, which may be expanded further. The students' council is informed about problems and evaluation results. In the view of the experts, the students' council should have institutional rights in the development of the study programmes, the monitoring of student workload, as well as in problem-solving between students and lecturers (see Chapter IV.2, Finding 17).

UPI provided videos and updated documents on the laboratories and equipment which gave an overview from afar. However, the online site visit and the examination of the campus made it next to impossible for the experts to take a proper, detailed and comprehensive view of the laboratories. The required resources for the number of students in the programmes BPBE and BPB mostly seem to be satisfactory. The laboratory capacities seem to be sufficient. Still, to ensure that this criterion is met, further information regarding the laboratories used in the Science Education Bachelor's programme, in the Biology Education Bachelor's programme and the Biology Bachelor's programme is required. The expert group noticed that while the biology and physics labs were mostly well equipped, there is still room for improvement with regards to the chemistry lab. The panel believes that part of the challenge to assess the respective resources lies in the limitations of the virtual assessment format. Respective evidence will require visual examination beyond the limitations of virtual presentation (e. g. a confirmation site visit). Consequently, at this time the experts conclude that additional evidence regarding the appropriateness of facilities, especially laboratories and equipment is required **[Finding 22]**. The students seemed to be satisfied with the overall infrastructure of the campus and of the labs. The library offers sufficient books and e-books to gain enough and additional knowledge to graduate. PhD students have additional laboratories for their research. Also, scientific work is strongly supported by UPI. The rooms and laboratories were mentioned to be barrier-free in order to accommodate for students with disabilities.

Conclusion

The criterion is fulfilled (MPSE, DPSE).

The criterion is partially fulfilled (IPSE, Biology Education, Biology).

7. Information / Public Information

Bachelor/Master Degree	Doctoral Degree
Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders. *[ESG 1.8]*	*Impartial and objective, up-to-date information regarding the programme and its qualifications is published regularly. This published information is appropriate for and available to relevant stakeholders.* *[ESG 1.8]*

Description

UPI indicates in its SER that the relevant information on all programmes under review is available on the website of the university; this includes programme description, course overview and learning outcomes as well as entry requirements.

Experts' Evaluation

In general, UPI provides clear information about the programme on each programme's official website. The information includes the description of each programme, intended learning outcomes, selection procedures, qualification awarded, teaching, learning and assessment procedures and, PhD learning, research, and assessment procedures. However, the experts consider it important to also publish the procedures for the academic integrity and corresponding policies in each of the official programme websites (see Chapter IV.2, Finding 13). This is very important considering the originality of students' outcomes that should be in line with international programmes using 21st century skills.

Conclusion

The criterion is fulfilled.

V. Recommendations of the panel of experts

The panel of experts recommends to accredit the study programmes "**Science Education**" (**Master of Education**) and "**Science Education**" (**Doctorate of Education**) offered by **Universitas Pendidikan Indonesia**.

The panel of experts recommends to accredit with conditions the study programmes "**Science Education**" (**Bachelor of Education**), "**Biology Education**" (**Bachelor of Education**) and "**Biology**" (**Bachelor of Science**) offered by **Universitas Pendidikan Indonesia**.

Findings:

1. The experts recommend further strengthening the monitoring system of the workload of the students and the support mechanisms for projects conducted within courses of the IPSE study programme.
2. The experts suggest increasing the number of chemistry courses within the curriculum of the IPSE study programme.
3. The experts recommend strengthening the connection between community service projects and the related issues of international discussions in the IPSE study programme, e.g. by linking to the implementation of the Sustainable Development Goals (SDGs) in the topics of the projects.
4. The high level of collaboration with teachers from local schools in the IPSE study programme should be maintained.
5. The expert group recommends gaining more international partners in the IPSE study programme including additional cooperation opportunities with schools abroad and establishing more exchange programmes.
6. The experts suggest explicitly aligning the IPSE curriculum with specific international school curricula for science.
7. The experts recommend increasing the number of international research, teaching and learning collaborations in the Science Education Master's and doctoral programmes, including with student participation.
8. The experts recommend increasing the number of publications in (international) peer-reviewed journals. Required support for both staff and students of all programmes should be strengthened.
9. The experts recommend putting more emphasis on genetics, microbiology, biotechnology, etc. in the curriculum of the Biology programme.
10. The experts strongly suggest placing the course "Evolution" in the Biology programme earlier in the curriculum and raising the number of credits allocated to it.
11. In the Biology Education programme, the experts suggest switching some of the elective courses, e.g., "School Biology Practicum" and "Inclusive Education", to mandatory courses.
12. In the Biology Education programme, the experts suggest offering an introduction to international curricula used in schools, e.g. as an elective in the curriculum on specific teaching methods or subject-specific curriculum management.
13. The experts recommend clearly communicating all quality assurance policies to the students, e.g. by publishing them on the university website.
14. The experts recommend regularly updating all quality assurance policies, especially the policies on academic integrity.

15. The experts recommend closing the feedback loop by providing information to the students on the changes carried out in the courses based on the feedback the students provided, e.g. by publishing the results on each programme's website.
16. The experts recommend increasing the analysis of alumni's career progression and making the results available to current students.
17. UPI is encouraged to explore additional mechanisms of student involvement in quality assurance, e.g. by giving the Student Board / Student Representative Council a more active role in quality assurance and curriculum development processes and/or in the monitoring of student workload and the complaints system.
18. The experts encourage UPI to foster the application of inquiry learning and creative/critical thinking in and outside the classroom.
19. The experts recommend strengthening the objectivity of the complaint procedures by, e.g., establishing an "examination control committee" that might enforce the defined quality criteria regardless of sensitivities of students or of lecturers.
20. For the Biology programme the experts strongly recommend promoting the (international) research performance of the lecturers in the fields of biology.
21. The experts recommend introducing an additional format of academic advising/mentoring next to the role of the academic advisor, e.g. peer counselling.
22. Additional evidence (e.g. checked within a confirmation site visit) regarding the appropriateness of facilities used in the Bachelor programmes IPSE, Biology Education and Biology, especially laboratories and equipment, is required.