AQAS

AGENTUR FÜR
QUALITÄTSSICHERUNG DURCH
AKKREDITIERUNG VON
STUDIENGÄNGEN E.V.

FINAL REPORT

ESA UNGGUL UNIVERSITY

CLUSTER TECHNOLOGY I

INFORMATICS ENGINEERING (BACHELOR)

INFORMATION SYSTEM (BACHELOR)

BIOTECHNOLOGY (BACHELOR)

May 2023

Content

Decision of the Accreditation Commission of AQAS 3
I. Preamble 7
II. Accreditation procedure 7
1. Criteria 7
2. Approach and methodology 7
III. General information on the university 9
IV. Assessment of the study programmes 9
1. Quality of the curriculum 9
2. Procedures for quality assurance 16
3. Learning, teaching and assessment of students 18
4. Student admission, progression, recognition and certification 20
5. Teaching staff 21
6. Learning resources and student support 23
7. Information 24
V. Recommendation of the panel of experts 26

DECISION OF THE AQAS STANDING COMMISSION

ON THE STUDY PROGRAMMES

- **INFORMATICS ENGINEERING (BACHELOR)**
- **INFORMATION SYSTEM (BACHELOR)**
- **BIOTECHNOLOGY (BACHELOR)**

OFFERED BY ESA UNGGUL UNIVERSITY, JAKARTA, INDONESIA

Based on the report of the expert panel, the comments by the university and the discussions of the AQAS Standing Commission in its 17th meeting on 22 May 2023, the AQAS Standing Commission decides:

1. The study programmes "**Informatics Engineering**" (**Bachelor**), "**Information System**" (**Bachelor**) and "**Biotechnology**" (**Bachelor**) offered by **Esa Unggul University**, **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.

2. The conditions have to be fulfilled. The fulfilment of the conditions has to be documented and reported to AQAS no later than **30 June 2024**. The confirmation of the conditions might include a physical site visit within the time period of twelve months.

3. The accreditation is given for the period of **six years** and is valid until **30 June 2029**.

Conditions:

For all study programmes:

1. The university must improve its process of continuous quality assurance of its study programmes in order to reflect the state of the art of each programme by better integrating the labour market, systematically involving students' and alumni feedback beyond surveys, and fully closing the Plan-Do-Check-Act circle.
2. The complaints and appeals procedure must be formalised (e.g. SOP) and better communicated to students.
3. The university must develop a clear concept regarding the integration of internships in the curricula. The difference between the short compulsory internships and the long MBKM-based elective internships and information on the respective duration and workload must be made transparent in the course descriptions. The university must ensure that the competencies gained in the long MBKM-based elective internship correspond to the specific courses being replaced. It must ensure that the learning outcomes of the specialisations can be reached even if some of their courses are replaced with a long internship.

4. The university must correct the published information on the programmes on its website including the learning outcomes, the list of courses, and the course descriptions, ensure consistency and where missing, complete it.

Additionally for the study programme “Informatics Engineering”:

5. Elective courses that are spread across semesters 4 and 7 must be organised to ensure that all students complete the necessary competencies related to their specialisation, particularly if they choose to pursue the MBKM programme in the seventh semester.
6. The course descriptions must be improved: more details must be included, consistency must be ensured, the level of detail must be comparable between the courses (e.g. similar number of learning outcomes for courses with the same number of credits), subtopics must be depicted, and references must be updated.
7. The latest technology trends in computing such as Cloud Computing, Real-time Computing, UI/UX, Design Thinking, DevOps, and Site Reliability Engineering must be included in the curriculum and depicted accordingly in the relevant course descriptions.

Additionally for the study programme “Information System”:

8. The curriculum must be updated to include the latest trends and developments in the field including agile methods for software development or project management, design thinking approaches, digitalisation of the economy, new business models and digital business, architecture models, architecture styles, enterprise architecture management, cloud computing, software-as-a-service, IT security, social media management, and social data analytics. The integration of the mentioned topics and corresponding competences must then be depicted accordingly in the relevant course descriptions.
9. The literature sources used in the study programme and mentioned in the course descriptions must be updated.
10. The curriculum must include basic knowledge of business and management; it must be depicted accordingly in the relevant course descriptions.
11. The research methods taught to students must be improved: the course “Research Methodology” must give an overview of the different kinds of research methods (including literature review and design science research methodology) and highlight their strengths and weaknesses; this must be depicted accordingly in the course description.

Additionally for the study programme “Biotechnology”:

12. The order of courses must be reviewed to provide the fundamental knowledge first and the applications to follow.
13. Instrumental analytics as well as modern technologies (such as Next Generation Sequencing and DNA synthesis) must be included in the curriculum and depicted accordingly in the relevant course descriptions.

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

For all study programmes:

1. More student-centred learning approaches should be introduced e.g. by changing the infrastructure set-up in class where necessary.
2. The university should reflect on the use of different teaching methods and blended learning, and develop a coherent didactical concept for the use of digital teaching. Assessment methods should be better linked to

teaching methods, cover all competency levels and take into account current challenges related to artificial intelligence and plagiarism.

3. More practical training should be included in the curricula.
4. Students should be better informed of the assessment regulations and procedures.
5. The university and faculties should provide additional research support and incentives for publications at least in international, peer-reviewed journals and at best in Q1- and Q2-ranked journals.
6. The university and faculties should develop a strategic plan and provide more support for lecturers moving up the academic ladder (including completing a Ph.D. and methodological training).
7. The university and faculties should support the development of English competencies among its administrative and academic staff.
8. Junior lecturers with a Master's degree should receive additional training in pedagogic skills.
9. (Wireless) Internet access should be improved throughout the campus.
10. Students should have better and easier access to the facilities and to additional individual study spaces.
11. Full information on the programmes including the courses descriptions should be made available on the public website in English.

Additionally for the study programme "Informatics Engineering":

12. A senior-level researcher should lead or consult with the study programme.
13. Elective courses should be transparently grouped with the field of study courses according to the specialisations.
14. The fit of the graduate profiles, the specialisations and the specific related competencies should be checked.
15. The current rubrics used to evaluate undergraduate thesis deliverables should be reviewed in order to raise the quality of the thesis reports.
16. A second assessor should be assigned to evaluate student projects, including the thesis report.

Additionally for the study programme "Information System":

17. The course descriptions should be improved and provide more detail on the specific learning objectives, competencies and content of each course.

Additionally for the study programme "Biotechnology":

18. The topics of risk management, good labour practices (GLP) and good manufacturing practices (GMP) should be included in the curriculum.
19. The university should reflect on the unique profile of the programme and depict it accordingly in its marketing and adapt the curriculum accordingly (broad topics vs. specialisation).

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

EXPERTS' REPORT

ON THE STUDY PROGRAMMES

- **INFORMATICS ENGINEERING (BACHELOR)**
- **INFORMATION SYSTEM (BACHELOR)**
- **BIOTECHNOLOGY (BACHELOR)**

OFFERED BY ESA UNGGUL UNIVERSITY, JAKARTA, INDONESIA

Visit to the university: 25-26-27 January 2023

Panel of experts:

Assoc. Prof. Ts. Dr. Novia Indriaty Admodisastro	Universiti Putra Malaysia, Faculty of Computer Science and Information Technology (Malaysia)
Prof. Dr. Susanne Leist	Regensburg University (UR), Faculty of Informatics and Data Science (Germany)
Assistant Professor Dr. Ioannis Pavlidis	University of Crete, Department of Chemistry (Greece)
Dr.-Ing. Susanne Zibek	Fraunhofer Institute for Interfacial Engineering and Biotechnology IGB, Stuttgart (Germany) (labour market representative)
Tanaro Schädler	Student of Ulm University (Germany) (student representative)

Coordinator:

Alexandre Wipf, Vi Le	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 universities, universities of applied sciences and academic associations. Since 2002, the agency has been recognised by the German Accreditation Council (GAC). It is, therefore, a notified body for the 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 academic studies and higher education institutions' teaching. In line with AQAS' mission statement, the official bodies in Germany and Europe (GAC and EQAR) approved that the activities of AQAS in accreditation are neither limited to specific academic disciplines or degrees nor a particular type of higher education institution.

II. Accreditation procedure

This report results from the external review of the study programmes "Informatics Engineering" (Bachelor), "Information System Engineering" (Bachelor) and "Biotechnology" (Bachelor) offered by Esa Unggul University.

1. Criteria

Each programme is assessed against a set of criteria for accreditation developed by AQAS: the AQAS Criteria for Programme Accreditation (Bachelor/Master). 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 each programme since not all indicators necessarily can be applied to every programme.

2. Approach and methodology

Initialisation

The university mandated AQAS to perform the accreditation procedure in October 2021. The university produced a Self-Evaluation Report (SER). In April 2022, the institution handed in a draft of the SER together with the relevant documentation on the programmes and an appendix. The appendix included e.g.:

- an overview over statistical data of the student body (e.g. number of applications, beginners, students, graduates, student dropouts),
- the CVs of the teaching staff,
- information on student services,
- core information on the main library,
- as well as academic regulations.

AQAS checked the SER regarding completeness, comprehensibility, and transparency. The accreditation procedure was officially initialised by a decision of the AQAS Standing Commission on 16 May 2022. The final version of the SER was handed in July 2022.

Nomination of the expert panel

The composition of the panel of experts follows the stakeholder principle. Consequently, representatives from the respective disciplines, the labour market, and students are involved. Furthermore, AQAS follows the principles for the selection of experts defined by the European Consortium for Accreditation (ECA). The Standing Commission nominated the aforementioned expert panel in September 2022. 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.

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 all panel members in order to increase transparency in the process and the upcoming discussions during the site visit.

Site visit

After a review of the SER, a site visit to the university took place on 25-26-27 January 2023. On site, the experts interviewed different stakeholders, e.g. the management of the higher education institution, the programme management, teaching and other staff, as well as students and graduates, in separate discussion rounds 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.

Reporting

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

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, the AQAS Standing Commission took its decision on the accreditation on 22 May 2023. AQAS forwarded the decision to the university. The university had the right to appeal against the decision or any of the imposed conditions.

In July 2023, 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

Esa Unggul University (EUU) is a private university in Indonesia, established in 1993 in accordance with a Decree of the Minister of National Education under the auspices of the Kemala Mencerdaskan Bangsa Education Foundation. EUU has 10 faculties and 37 departments offering a variety of programmes that lead to Diploma, undergraduate, professional and postgraduate degrees. At the time of the submission of the self-evaluation report (SER), the university reported 15,746 active students and 504 teaching staff.

The university defines its core research areas in (1) poverty alleviation, i.e. food safety and security; (2) new and renewable energies; (3) health, tropical diseases, nutrition and medicine; (4) disaster management, national integration and social harmony; (5) regional autonomy and decentralisation; (6) arts and culture/creative industries and information and communication technologies; (7) human development and competitiveness.

Esa Unggul University has entered a long-term strategic partnership with the state University of Arizona. EUU has created a strategic plan (RENSTRA) with 3 main goals: human resources with character and high competitiveness, a healthy and independent university, and a university with superior reputation. As part of this strategic plan, concrete goals regarding the GPAs and TOEFL scores among graduates, the waiting times between graduation and first job, and a quota for teaching staff ranking Assistant Professor or higher have been set for all study programmes.

Among the 3 programmes under consideration, both Information System and Informatics Engineering are part of the Faculty of Computer Science, which has 2,098 students in total. Information System was established in 2004, Informatics Engineering followed in 2012. According to the SER, their admission targets are 300 and 450 students per year, respectively. The average number of actual enrolments is stated to be 200. The Bachelor's programme in Biotechnology was established in 2016 and admits 25 students per year. It is one of 11 programmes at EUU's Faculty of Health Sciences (3,230 students total).

IV. Assessment of the study programmes

1. Quality of the curriculum

Bachelor's/Master's 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]

Overarching information

The curricula of all study programmes at EUU are geared towards its University Values, which are defined as "Academic excellence for global competition and entrepreneurial ability". To promote those values, EUU is offering certain courses across all programmes, namely 3 levels of English courses, a TOEFL course, and an Entrepreneurship course at 3 levels as well. To comply with government regulations, EUU also provides compulsory courses in Pancasila Education, Citizenship Education, Religious Education, and Indonesian Language for students of all programmes. EUU states that all 3 programmes under consideration are classified level 6 according to Indonesia's National Qualification Framework (KKNI).

For each of the 3 programmes under consideration, the curriculum's Learning Outcomes are evaluated at the end of each semester. Information on the suitability of graduates for the job market is obtained via a tracer study survey managed by the university's Counselling and Alumni Bureau. The university has developed matrices of the relationships between the programme-specific graduate profiles and the Programme Learning Outcomes to help with evaluation and adjustments.

Study programmes

Informatics Engineering (Bachelor)

Description

The SER describes the graduate profile for Informatics Engineering in 5 parts: programming and software development, IT network security and infrastructure, IT mobility and IoT, machine learning engineer, and technopreneur.

The Intended Learning Outcomes are grouped under the aspects of attitude (religious belief and values, entrepreneurial spirit, independence), general skills (e.g. critical thinking, cooperation and working in teams), specific skills (e.g. building computer programmes, problem solving through computational techniques and information technology), and specific knowledge (theoretical concepts in the field of informatics, developing algorithms and methods for computer-based software).

The programme in Informatics Engineering has a total of 144 credits. 124 credits belong to compulsory courses (e.g. "Object-Oriented Programming", "Advanced Computer Network and Lab", "Operating Systems", "Data Mining", "Information Technology Professional and Social Issues" as well as a final thesis in semester 8). The remaining 20 credits are earned via elective courses (i.e. "Machine Learning", "Internet of Things", "Mobile Application Design", "Mobile Network", "Distributed Data Processing", "Mobile Programming", "English 3", "Entrepreneurship 3"), which are offered in semesters 4 to 7. An internship is included in semester 7. There are 4 specialisations in the programme: Internet of Things (IoT), Artificial Intelligence, Mobile Programming, Software Engineering.

Experts' evaluation

In general, the curriculum provides fundamental courses for the main fields of Informatics Engineering (compulsory and specialisation) and essential basic mathematics courses (e.g., algebra, statistics, calculus). The programme was last accredited nationally from March 2022 until March 2025 under BAN-PT, and evaluated based on the Standard National (SN), Directorate General of Higher Education and Indonesia (DIKTI) and Indonesia National Qualification Framework (KKNI), DIKTI. The programme is therefore seen to be aligned with the corresponding EQF level 6. The programme received approximately 450 students per semester/year dispersed under its main campus and branches in different locations.

Despite this positive view, the experts consider that several important areas demand attention, including specialisation competencies and graduate profiles, course description and Semester Teaching Plans (RPS), test/final exam competencies level, and thesis report.

An area of concern is the absence of a well-defined structure for courses that support the offered specialisations i.e., the Internet of Things (IoT), Artificial Intelligence (AI), Mobile Programming, and Software Engineering within the programme. To ensure the best fit for specialisation and graduate profiles, each group of courses should have an adequate number of competencies. Furthermore, it was identified that the course plan for the seventh semester included 7 courses that could be replaced with the government's Independent Campus (MBKM) programme. One of these courses is AI, which is highly relevant to the AI specialisation. Consequently, students pursuing this specialisation may be negatively impacted by the loss of this crucial

competency compared to other specialisations. Therefore, the experts recommend grouping the elective courses together with the field of study courses according to the specialisations (**Finding 1**). Elective courses that are spread across semesters 4 and 7 must be organised to ensure that all students complete the necessary competencies related to their specialisation, particularly if they choose to pursue the MBKM programme in the seventh semester (**Finding 2**, see also Chapter 4). The department should reflect on how the related competencies satisfy the requirements of the graduate profiles (**Finding 3**). This may necessitate a reorganisation of the course plan to guide the students' interests in a structured and personalised manner, in addition to receiving guidance from their Academic Advisor. The alignment of the graduate profiles, the specialisations and the specific related competencies is important.

A second area of concern is the inadequate level of detail provided in the courses' descriptions (i.e., topics and sub-topics), making it challenging for students to transfer credits seamlessly. Moreover, the references cited were outdated, which could undermine the programme's quality. Besides, the course learning outcomes described in course descriptions and RPS were inconsistent, and some were described with indirect measures (e.g., "master"). Thus, this may pose some difficulty to evaluate the programme outcomes through a summative evaluation by the end of the programme completion cycle. The course descriptions would thus benefit from several improvements, including (i) making the learning outcomes assessable, with clear criteria to evaluate whether students have met the required standard; (ii) providing a detailed breakdown of the course content, including topics and sub-topics; and (iii) updating the references to reflect current research within the past five to six years. Consistency in the course descriptions across all programme courses is also essential to ensure easy credit transfer for exchange and transfer students. Additionally, it is crucial to ensure that the course learning outcomes are written consistently in both the course descriptions and RPS, which serve as the primary references for each semester's course preparation (**Finding 4**, see also Chapter 7).

The third issue raised concerns about the test and final examination questions, which predominantly focused on lower-level competencies of cognitive, affective, and psychomotor skills. For example, the test and final exam primarily assessed cognitive competencies by using questions that required students to 'describe', 'list', 'define', or 'identify' concepts. However, in order to promote student progression, higher-level competencies must be included in the assessment process and aligned with the course's learning outcomes. The experts therefore recommend enhancing the construction of test and final exam questions to ensure that they cover all competency levels specified in the course learning outcomes (**Finding 5**). The assessment moderation process should be used to review the question-writing style and identify any areas for improvement to ensure that the end-of-course assessment achieves its intended goals. For instance, Bloom's taxonomy outlines cognitive competencies from lowest to highest order i.e., knowledge and comprehension to application, analysis, synthesis, and evaluation, with corresponding verbs to guide the construction of appropriate questions.

Although the undergraduate thesis topics are acceptable, the thesis reports were found lacking important aspects of a good standard. The issues noted include incomplete and inappropriate sections and titles, missing citations, and confusing organisation. Furthermore, the problem statements were scarcely discussed, and the literature review was included in chapter 1. Additionally, a chapter labelled as research methodology described the development methodology instead. To achieve an A grade, the undergraduate thesis project must have both the thesis report and technical implementation produced in good quality. Here the experts suggest the department review the current rubrics used to evaluate undergraduate thesis deliverables and make any necessary modifications to enhance the quality of the thesis reports (**Finding 6**). The final year project coordinator should review and monitor the grades and feedback provided to students to ensure that they are aligned with the overall project accomplishment, including both the thesis and technical implementation. It would also be beneficial to assign an additional assessor to evaluate the student project, including the thesis report, as a second set of eyes (**Finding 7**).

Finally, the experts also discussed the content of the curriculum in details with all stakeholders including the labour market. To meet the current needs of the labour market, the experts believe that the programme must incorporate the latest technology trends in computing, such as Cloud Computing, Real-time Computing, UI/UX, Design Thinking, DevOps, and Site Reliability Engineering (SRE) (**Finding 8**). These topics could be introduced as a new course in the upcoming curriculum version or integrated into the relevant existing courses. The experts believe that, while the adapting the curriculum to include the latest trends in the field, the university should discuss how the collaboration with practitioners from the industry can help the students gain practical knowledge and skills that are in demand in the job market and remain up to date with the latest technologies and industry developments. The department could periodically invite industry experts to share their experiences in the classroom and discuss emerging topics. This approach would expose students to the latest technological advancements sooner, while waiting for curriculum revisions to be implemented could take a longer time.

Conclusion

The criterion is partially fulfilled.

Information System (Bachelor)

Description

The SER describes a 4-part graduate profile for Information System: information system developer, information technology consultant, business and systems analyst, and data specialist.

The Intended Learning Outcomes are grouped under the aspects of attitude, general knowledge, and specific skills. Under the aspect of general knowledge EUU lists 5 items (e.g. critical thinking, teamwork and leadership in the field of information systems) and under the aspect of attitude 3 items (e.g. appreciation for diverse cultures and opinions, internalisation of EUU's vision). Under specific skills, 2 items are listed: The ability to work on problems using the rules and tools of software engineering, and the ability to design and generate innovation in the scope of technology and entrepreneurship.

Although a maximum of 148 credits are on offer, students can graduate with 144 credits. 123 of those credits belong to compulsory and 21 to elective courses. The elective courses are offered in semesters 4 through 7 and cover cross-subject topics ("English", "Entrepreneurship") as well as subject-specific topics (e.g. "Enterprise Application Systems", "Information System Risk Analysis", "Information Security and Guarantee", "IT for Disaster Recovery"). The compulsory courses include an internship in semester 7 and the final undergraduate thesis. After the last national accreditation, the programme's curriculum was changed to equalise the distribution of credits between the courses. Since 2019, each subject except the final thesis is assigned 3 credits.

Experts' evaluation

The study programme is well-structured and has been systematically developed. The starting point is the definition of the 4 graduate profiles, and subsequently, competencies (learning outcomes) were derived by discussions and evaluations with the relevant stakeholders. Eventually, courses that submit the competencies are defined. Likewise, the most important topics of an information systems study programme are covered by the different courses. In detail, however, some points need to be improved.

The most urgent need is to keep the content of the courses up to date. Changes are necessary in the view of the experts in order for the students to reach an internationally accepted standard of Bachelor studies in information systems. In detail:

1. Technological advancements are one of the main drivers of our constantly changing and evolving world. The pace of change has also accelerated significantly in recent years, with new technologies, ideas, and trends emerging at a rapid pace. As technology continues to advance and transform the way we live, work, and interact with one another, the study programme needs to keep up with the latest trends and developments in the field (**Finding 9**). Looking at the course descriptions, many courses have not been changed in recent years (as well as the listed literature). Specifically, several current topics do not seem to be covered by the courses, which are referred to in the following, but only those that are essential for the defined graduate profiles:

   - Information System Developer: The new agile methods for software development (e.g., Extreme Programming, Scrum) or project management (e.g., Kanban) or, in general, design thinking approaches that support creative development processes are currently strongly in the focus of business practice. None of these topics are mentioned in the course descriptions.
   - Business & System Analyst: Digitalisation has permanently changed the economy and new technologies allow new value creation structures such as open innovation, interactive value creation, commons-based peer production, and generally virtual companies as well as business ecosystems. New business models (e.g. databased business model) and new approaches describing business models (e.g. 4C business model) are also emerging. All these topics and some more can be summarised by the keyword “digital business”, which should be more firmly anchored in the curriculum and complement the content of the e-business course.
   - Information Technology Consultant: From the perspective of an Information Technology Consultant, the changes brought by digitalisation are reflected above all in the IT architecture. Therefore, the following topics should complement the study programme: architecture models (e.g., Web architecture, service-oriented architecture, peer-to-peer architectures, component-oriented architecture, client-server architectures), architecture styles (e.g., representational state transfer), enterprise architecture management, cloud computing, and software-as-a-service. At the same time, these “open” architectures make companies more vulnerable. With the increasing number of cyber threats and attacks, the topic of IT security, which is topical in today’s world anyway, must also be strengthened and aligned to these open architectures.
   - Data Specialist: Social media has become an essential part of the way companies interact with their customers, providing a more direct, real-time, and personalised experience. As a result, social media confronts companies with increasingly growing amounts of data that has to be processed, stored, and analysed. Thus, in addition to the management of data in the company (e.g. via data warehouse), the analysis of this “new” web-based data is becoming increasingly important for science and practice. The study programme lacks courses that address this new focus, such as Social Media Management and Social Data Analytics. In particular, an emphasis should be placed on the methods and tools that support the analysis of the data (e.g. sentiment analysis, topic modelling, network analysis, content analysis) which at the same time enables the students to gain a first insight into the current and important area of Data Science and Artificial Intelligence.

2. Apart from the need to update the content of the courses the literature sources must be updated as well (**Finding 10**). Many of the listed literature sources are at least 10 years old and often even older (e.g. for the course e-business two sources from the years 2001 and 2002 were recommended).

3. All 4 defined graduate profiles address the crucial point that information systems have to meet business needs. Such as the Information Systems Developer should design and create information systems that meet business needs, as well as the Business & Systems Analyst should analyse and design enterprise and business-based systems and formulate solutions to enterprise and business problems. However, the

study programme does not include a course with basic knowledge in business and management (e.g. marketing, production theory, organization theory). All courses have a strong emphasis on informatics. Enterprises or markets are viewed only from the perspective of processes or information systems. In particular, basic knowledge of business and management is necessary to create entrepreneurial business ideas which have the potential of being successful on the market (**Finding 11**).

4. Especially in the information system discipline and academic community there was an intense discussion on the rigor and relevance of research projects. A plethora of academic papers discussed essential requirements for research projects and the used research methods. As a result, the community agreed on principles and procedures which help researchers rigorously apply their research method for a defined purpose in a certain research project. And besides, the scientific community agreed not to only accept traditional empirical research and recommends using not only quantitative (e.g. survey, experiment) and qualitative research methods (e.g. action research, case study) but also methods that support the practice of designing artifacts (e.g. design science research) (**Finding 12**). Accordingly, the course Research Methodology should give an overview of the different kinds of research methods and highlight their strengths and weaknesses. Additionally, the course should introduce these methods in more detail which could support the students to write their bachelor thesis. These are in the view of the experts at least the literature review and design science research methodology (for literature review see Webster et al. 2002, Vom Brocke et al. 2009, Cooper 1988; for design science research see March et al. 1995, Peffers et al. 2007).

While updating the curriculum to the current trends in business administration and informatics, the university should discuss how collaborations with industry partners can enhance the practical applicability of their education. By engaging with industry partners, the university can ensure that its programmes remain relevant and up to date, reflecting the latest developments in the field.

EUU offers a very friendly learning environment with proper rooms and buildings. The computer labs are well equipped. The university provides a well-structured curriculum and offer standardised course descriptions which include (among others) the learning outcomes, subject aims, teaching and assessment methods as well as the course contents. However, the course descriptions are on a very abstract level and sound for many different courses very similar. At least the learning objectives and competencies (to be taught) should be described in more detail for each course regarding its specific content (**Finding 13**).

Conclusion

The criterion is partially fulfilled.

<u>Biotechnology (Bachelor)</u>

Description

The SER lists 8 general occupations for graduates in Biotechnology: researcher (assistant), research and development, quality control, product specialist, DNA forensic expert, medical lab specialist, biotech entrepreneur, or science journalist/editor/writer.

Ten Intended Learning Outcomes are grouped under the aspects of attitude (appreciation for diverse cultures and opinions, internalisation of EUU's vision), general knowledge (the ability to master and use concepts of biotechnology and related branches), general skills (e.g. communicating well in Indonesian and other languages, decision-making and problem-solving based on subject-related expertise), and specific skills. The latter include laboratory skills, working in bio-risk management and occupational health and safety, the ability to apply bioinformatics science in various fields of work, and the ability to manage biological resources by

applying biotechnology science (genetic engineering, nanotechnology, stem cell, bioinformatics, tissue culture, DNA and protein technology, bioprocess).

The programme in Biotechnology has a total of 144 credits, 136 of which belong to compulsory courses. The compulsory part of the curriculum includes elements such as “Biology and Biodiversity”, “Animal and Plant Physiology”, “Bioinformatics”, “Biotechpreneurship”, “Medical Biotechnology” as well as a final thesis. The elective courses are “Technology of Fermentation”, “Nutrigenetics and Nutrigenomics”, “Stem Cells”, “Gene Therapy”, “Bioenergy”, “Halal Products”, and “Bioremediation”. All electives are offered in semester 6. With the exception of the final thesis (6 credits), all courses are assigned either 2 or 3 credits.

Experts’ evaluation

The programme provides solid background to the graduates of the programme, and several of the graduates have already proven their quality in the job market. The theses of the graduates are of sufficient quality, something that proves that the learning outcomes are met, and they are also in line with the European Qualifications Framework, level 6. The ratio of lecturers to students is very good, which is important for a programme that relies a lot on practical skills. Moreover, the lecturers’ educational level is quite high, considering the level of studies of the lecturers at the national level. The university is well equipped for the studies and provides opportunities to the students to work on state-of-the-art techniques and topics. The programme also offers university-wide classes that have to do with soft skills, something that is very interesting and helps the graduates to develop and formulate the profile they want. However, there are a few points that need to be considered, related to the curriculum.

The order of the courses does not seem reasonable and complex topics appear in the programme before basic knowledge is provided. For instance, Cell Biology, Medical Biotechnology and Food Biotechnology are taken before Biochemistry, Molecular Biology and Bioinformatics. The order of courses must be reviewed, in order to provide the fundamental knowledge first and the applications to follow (**Finding 14**).

Moreover, as a programme that focuses on a field that has a lot of applications, the analytics, as well as modern technologies (such as Next Generation Sequencing and DNA synthesis) must be included in the curriculum, and they should be described adequately in the curriculum documents (**Finding 15**). For instance, there are the classes “Biotechnology Instrumentation” and “Bioassays”, but it is not clear if they are about the analytics, and what the level of training of the students on these techniques is. Furthermore, the experts consider that teaching basic chemistry besides organic and inorganic chemistry is also of importance. Basic analytical chemistry should also be introduced in the programme as the current classes do not cover the analytic skills required for such studies. In analytical chemistry, techniques like sample preparation as well as theory of different devices like IR-spectroscopy, HPLC and GC as chromatography as well as validation aspects should be included. The topics of risk management, good labour practices (GLP) and good manufacturing practices (GMP) should also be included in the curriculum (**Finding 16**). An official valid certificate for GMP and GLP should be offered to the students. Also, an official certificate as biosafety manager or chemical risk manager (for dangerous chemicals) are helpful certificates for a good job in the industry (**Finding 17**, see also Chapter 4).

Making these changes, the university should reflect on the unique profile of this specific programme and depict it accordingly in its marketing, and adapt the curriculum accordingly (broad topics vs. specialisation), especially taking into consideration the differentiation to other existing programmes, such as the "Pharmacy” programme offered from the same university (**Finding 18**).

Another point that needs to be addressed is the consistency of the credits to the workload allocated to each course. For instance, the credits given for the thesis are very low, and they should be increased to represent the workload that is requested from the students (**Finding 19**). As the thesis takes a whole semester, the

credits should be around 20. Also, the total amount of credits allocated to generic courses (8 credits under the header ESA100, comprising of the university-wide courses on citizenship, religion, language etc.) is high. This – especially the language class – could be provided as preparatory class for foreign students or for everyone interested. Language classes should be available before the studies start and not during the teaching of other subjects too.

Conclusion

The criterion is partially fulfilled.

2. Procedures for quality assurance

Bachelor's/Master's 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.

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.

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]

Description

EUU has set 24 internal quality assurance standards based on Indonesia's National Higher Education Standards. EUU's quality assurance is set up at 3 levels: a Quality Assurance Unit (UJM) responsible for each study programme, a Quality Control Group (GKM) for each faculty, and the Quality Assurance Office (KPM) for the university as a whole. Each GKM is headed by a chairperson who coordinates with the Dean, Deputy Dean, and the heads of the study programmes.

The university's Quality Assurance Office makes use of the documentation system ISO 9001:2015 as well as the accreditation provisions of the national accreditation agency BAN-PT. It conducts yearly internal audits, the results of which are relayed to the study programmes. In addition, the study programmes undergo external evaluation by BAN-PT every 5 years.

The SER describes how EUU utilises its academic information system (SIAKAD) for individual as well as population assessments. It is used to monitor lecturer attendance (weekly), student attendance (weekly), course pass rates (every semester), and the completeness and relevance of teaching materials (every semester). The collected data can be evaluated and monitored by the Dean, the heads of study programmes, the lecturer coordinators of courses, study programme staff, as well as lecturers of the relevant subject and students.

Monitoring the rate of attendance and the suitability of the topics is carried out by the head of the study programme and students who validate the lecture journal attendance. One student per subject is tasked with verifying the lecturer's attendance and materials in each meeting. The performance of lecturers is also measured through a student satisfaction index.

The SER defines procedures to gain input from students, alumni, and potential employers in designing and evaluating the curriculum. Students are involved through assessments by the head of their study programme

and their academic advisors as well as data from SIAKAD. Alumni take part in focus group discussions and yearly surveys. Representatives of the labour market are invited as speakers, but also take part in focus group discussions and questionnaires.

Information and data on graduate competencies are obtained through group discussions in relevant scientific associations and industrial societies (e.g. from the field of biotechnology), meetings with industrial partners who have collaborated with the study programmes in joint research activities or joint workshops, as well as meetings, webinars, guest lectures that invite experts from research institutes and industry practitioners.

Experts' evaluation

In general, Esa Unggul University has a well-established and thorough quality assurance process. The university's policies govern the programmes, and the quality system encompasses a suitable range of relevant factors. Standard operating procedures appear to be in place at all levels of the university's structure. The quality assurance team conducts time-basis assessments, and the findings serve as indicators for areas that improvement. Nonetheless, the experts found that the findings and improvements made from the assessment are not communicated and shared effectively to the relevant parties. Thus, the continuous revision plan related to the programme may be affected by missing out valuable insights and by an incomplete cycle.

The expert formed an impression during the site visit that the labour market was generally satisfied with the students' (interns) and graduates' skills, attitudes, and aptitudes. Meanwhile, the representatives of the labour market the experts talked to were not involved in any of the programme development exercises with the university. Thus, the experts could not gather their insights into the impact of the curriculum improvement processes. Additionally, the experts found that the latest trends related to each specific programme are not being included (see Chapter 1). It is important to continuously track changes in the research field and job market and incorporate these insights into the programmes.

Through a better involvement of alumni, the university would gather knowledge and information on their job (and contacts to their companies) and on the view of the labour market regarding the attainment of the learning outcomes. On the other hand, some collaboration with alumni/the labour market during the Bachelor's thesis or practical courses could be developed, so that students gather experience in industry during their studies in order to prepare the first step onto the job market after completing their Bachelor's degree.

The feedback from the labour market also shows the importance of industry internships and the importance of students' hands-on capabilities. The labour market needs Bachelor graduates with high skills in basic studies as well as in novel topics (IT is a fast-changing market; security is an issue; biotechnology implements nowadays DNA synthesis as well as bioinformatics within Next Generation Sequencing etc.).

Through the experts' observations, the students' involvement in the continuous improvement of the programmes was quite limited and mostly one-sided. The university should actively seek and incorporate students' feedback and evolving needs into their programme improvement efforts at various levels. The university should also be able to communicate back this revision to the student body.

In conclusion, the university must improve its process of continuous improvement to reflect the state of the art of each study programme by better integrating the labour market, systematically involving students' and alumni feedback beyond surveys (Student Satisfaction Index on Lecturer Performance), and fully closing the Plan-Do-Check-Act circle (**Finding 20**).

Conclusion

The criterion is partially fulfilled.

3. Learning, teaching and assessment of students

Bachelor's/Master's 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]

Description

EUU characterises its methodology as student centred, based on active discussion and study. Regarding its learning methods it refers to small group discussion, project-based learning and laboratory practice under the guidance of lecturers and laboratory staff. To evaluate students, lecturers carry out quizzes and assess the results of discussions, presentations, and essay reports. Concrete parameters for teaching in the study programmes are set in the faculty's academic guidelines. They include the following provisions: For each subject, 16 face-to-face meetings are held each semester that consist of 14 lectures, 1 midterm test and 1 final-term test. Weekly assignments are foreseen. Learning materials are prepared by the lecturers, starting from the Semester Teaching Plans (RPS), required textbooks, modules, and presentation slides, link journal, assignment, quiz, and forum. Lecturers report their course materials to the head of the study programme for green-lighting.

In addition to face-to-face contact in class, students and lecturers interact outside the classroom in field studies, field observations, surveys, product marketing, and data collection, as well as structured thesis mentoring activities, scientific writing competitions, internship mentoring etc.

All 3 programmes under consideration make use of lectures, case studies and/or analyses, as well as discussions and individual/group presentations for the majority of their courses. In most cases, those core methods are complemented by additional elements. In Informatics Engineering and Information System, students also write papers for publication, use tutorials and do practical work. Meanwhile, students of Biotechnology learn via laboratory activities, site visits and product presentations as well.

The programmes in Informatics Engineering and Biotechnology have made changes to the structure, teaching concept, workload and content of their curriculum since their respective last national accreditations in 2020 and 2018. The Information System programme was last nationally accredited in 2021, with the results yet to be presented at the time of SER submission.

EUU states that it accepts transfer students from other universities, students who work part-time, international students who do not fully understand Indonesian, and students with disabilities. The latter are to be accommodated by a companion to lend assistance in the learning process and practical work in the laboratory.

All exams must be presented to the head of the study programme for prior approval. They can be conducted either online or offline. The programmes' scoring system consists of eight grades from A to E. Students can try to remedy a failing grade once by means of re-examination or a given assignment.

Experts' evaluation

All 3 programmes use a mixed approach with lectures, but also using case studies and presentations in most of the courses, which provide some element of involvement of the students in the learning process.

Interestingly students need to log-in when visiting the classes or laboratories and if their attendance is not kept up, the class of an individual student could be failed and needs to be repeated. On one hand the university

has more overview about the attendance of the students, however, there is a lot of efforts in controlling the students. Nevertheless, a combination of statistics of visiting classes and grades gives the opportunity to evaluate each student in an early stage and could give the chance of providing more support early on if there are serious problems.

Generally, more student-centred learning approaches could be considered, such as the use of round tables for discussions, the use of self-evaluation and peer-review in the classes and presentations. All lecture halls have the typical structure for frontal teaching, maybe some rearrangement should be considered to enable the interaction between students and allow the working in groups (**Finding 21**).

Due to the three different locations of the university, the digitalisation of learning and teaching processes at EUU has long been an important issue and online material is naturally available. However, the experts have missed a deeper discussion of the strategy for the digitalisation of teaching and learning processes. To raise the quality of learning and teaching processes it is not sufficient to provide undifferentiated recorded lectures or enable the streaming of lectures/seminars. Not all content can be taught digitally in the same way and not every learning outcome can be achieved in the same way. The 3 programmes use a blended teaching methodology, however it is not clear which learning outcomes are achieved using this approach. Content and teaching format should be aligned to achieve the defined learning outcome. Therefore, possible advantages of online learning (e.g. easily accessible, flexible hours, easy sharing of resources) and disadvantages (e.g. less face-to-face interaction, technological limitations) should be considered. It is additionally important to regularly monitor and evaluate the progress of digital teaching and learning processes. The university should therefore reflect on the use of different teaching methods and blended learning and develop a coherent didactical concept for the use of digital teaching (**Finding 22**).

At the moment it does not seem that the diversity of students' needs is fully considered (support for students with special needs is of course offered), there are no flexible learning paths available, or at least not officially documented. Although a specific suggestion could not be introduced here, as the needs of students may vary a lot – yet the introduction of part-time studies could be a step in this direction.

Moreover, more practical training should be included in the curricula (**Finding 23**), as these studies are in fast evolving fields and the graduates need to have hands-on experience on the topics that they will be asked to work on in the job market. It is interesting that the students are required to have a practical internship, this should be further developed, and the university should capitalise on the feedback of the students, and the external partners, in order to further develop each study programme.

Concerning the assessment process, the description of the classes provides all the available information on the different examinations, as well as their weight to the final note of each class. It is also very positive that there is an academic advisor that follows up the progress of the students and advises them if need be. Yet, assessment methods should be better linked to teaching methods and take into account current challenges related to artificial intelligence and plagiarism (**Finding 22**). Since all the students interviewed during the site visit did know how to use ChatGPT, opportunities and challenges of the use of ChatGPT in learning processes should be considered. Additionally, there should also be an official way (or a more transparent way) to inform and familiarise the students with the assessment regulations and procedures (**Finding 24**). The process for complains and appeals is not formalised, and any conflict seem to be resolved in a personal level. However, the complains and appeals procedure must be formalised, in the form of a Standard Operating Procedure (SOP), and this procedure needs to be communicated to the students, early on from their registration (**Finding 25**).

Conclusion

The criterion is partially fulfilled.

4. Student admission, progression, recognition and certification

Bachelor's/Master's degree
Consistently applied, pre-defined, and published regulations are in place which cover student admission, progression, recognition, and certification.
[ESG 1.4]

Description

According to the SER, the recruitment of new students is regulated by a number of documents, namely an EUU statute, a quality management document, a rector's decree which is updated annually, and quality guidelines for new student admission.

To enrol in the Informatics Engineering and Information System programmes, prospective students must have graduated high school with a focus on natural sciences, and with a focus on natural or health sciences for the Biotechnology study programme. Applicants have to pass an entrance examination. Each round of admissions is announced through print media, electronic media and social media, providing information about the study programme, registration period, and tuition fees. The admission requirements are published on EUU's website.

The recognition of courses taken outside the university is regulated by the Foundation and described in EUU's SOP. Transfer students at the diploma and undergraduate levels are required to submit a transcript of the courses that have been taken. The head of the study programme converts the values, and the results are reported to the dean and the student.

Upon graduation, students receive their diploma, a transcript of grades, and a diploma supplement that provides information about the competencies, achievements, and other activity certificates they have obtained.

Experts' evaluation

The formal admission requirements and the specific requirements for the individual courses are clear in the application process, since the students have to provide evidence of their suitability and motivation. Course-specific requirements, such as grades in the respective areas, are queried. Nevertheless, the financial resources are also necessary. Students who receive support from their parents or a scholarship can attend the private university.

The process for the recognition of previous competencies of the applicants is not entirely clear to the experts – this will probably be discussed individually with the students if the students switch from other universities, then the programme head and the dean are involved, according to the information provided by the university in the self-evaluation report.

During their studies, the students receive teaching manuscripts and bound manuscripts for the practical courses for their learning success. Students in all 3 programmes are taught a foundation that will enable them to obtain a position in their respective industry with a Bachelor's degree or to pursue further education in a future Master's programme.

The students are given the opportunity to do an internship in the industry, so that on the one hand the importance for the industry is recognised and on the other hand the students can take the first step for a job. For this purpose, the university should conceive an industry catalogue as well as a company network for the exchange of possible future prospects. Most of the internships the students complete take place within the framework of the government Independent Campus (MBKM) scheme (but in the study programme Informatics Engineering there is also a compulsory internship irrespective of the MBKM scheme). These different options were not made clear by the university during the site visit. The university thus must develop a clear concept

regarding the internships in the curricula. The difference between the short compulsory internships and the long MBKM-based elective internships and information on the respective duration and workload must be made transparent in the course descriptions. The university must ensure that the competencies gained in the long MBKM-based elective internship correspond to the specific courses being replaced. It must ensure that the learning outcomes of the specialisations can be reached even if some of their courses are replaced with a long internship (**Finding 26**).

In the area of certification, it is recommended that the university enable students to obtain certified certificates in IT security, laboratory safety (biotechnology: biosafety level, chemistry: hazardous substances officer) during their studies. In addition, certified certificates in the direction of GLP (good laboratory practice) and GMP (good manufacturing practice) in the area of biotechnology would be useful as well (**Finding 17**). The material provided to students upon graduation corresponds to the standards and include the relevant information.

Conclusion

The criterion is partially fulfilled.

5. Teaching staff

Bachelor's/Master's 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]

Description

The recruitment of new full-time lecturers follows a 3-step procedure consisting of a psychological test, an interview, and a microteaching test. Part-time lecturers are assessed and approved by the head of the respective study programme. To teach in a Bachelor's programme, the minimum qualification level is a Master's degree. Lecturers must conduct at least one research and community service project every year. Research can be supported through internal grants (funded by the Yayasan Pendidikan Kemala Bangsa Foundation), external grants (funded by the government and industry) or independent funding. Lecturers are required to publish the results of their research and community service in international, national, and local journals. Full-time instructors can benefit from the study programme's collaborations in the field of publications and research. According to information in the self-evaluation report, the study programmes have also organised collaborative scientific seminars.

The programme in Informatics Engineering is staffed by 3 associate professors, 4 assistant professors working full-time. In addition, the programme is employing 2 consultants and professionals as part-time lecturers. 3 lecturers with a Ph.D. are involved in the courses according to the self-evaluation report of the university.

The programme in Information System is staffed by 9 assistant professors working full-time. In addition, the programme is employing 2 consultants and professionals as part-time lecturers. Among the lecturers that are 2 Ph.D. holders.

The programme in Biotechnology is staffed by 9 assistant professors (including 5 Ph.D. holders) working full-time. In addition, the programme is employing 4 consultants and professionals as part-time lecturers.

Experts' evaluation

Since universities play an important role in society by providing education, advancing knowledge and technologies, promoting critical thinking, and developing future leaders, the content that is taught in the classroom must be based on science. Scientific knowledge is based on empirical evidence or rigorous research, theories, and concepts that have been tested and verified through research and therefore can be considered reliable and valid. Scientific knowledge is constantly evolving, encourages critical thinking, and has made many important contributions to society by improving health and well-being, advancing technology, and driving economic growth (just to name a few contributions). Therefore, the leading board of the university and the deans of the faculties are responsible to promote and challenge the skills of the lecturers to provide science-based teaching.

Against this background, the HR Development Bureau has defined standardised processes for recruitment and career development. But only some of the lectures at EUU in the 3 study programmes have Ph.D. degrees and many of them publish their research outcomes only in national journals. This means that many lecturers are only in the process of establishing themselves in the scientific community and cannot pass on much experience and knowledge from the discourse to the students, since they are aiming for their Ph.D. degree themselves. Additionally, many lecturers participate in scientific discourses only at the national level, which of course significantly limits the level of experience and knowledge in comparison to the international level.

The following measures are therefore suggested to improve the situation:

1. The university and faculties should provide additional research support and incentives for publications at least in international, peer-reviewed journals and at best in Q1- and Q2-ranked journals (**Finding 27**).
2. The university and faculties should develop a strategic plan and provide more support for lecturers moving up the academic ladder (including completing a Ph.D. and methodological training) (**Finding 28**).
3. The university and faculties should support the development of English competencies among its administrative and academic staff (**Finding 29**).
4. Further the experts believe that in the area of teaching, young Master's graduates should also receive additional training in pedagogic skills (**Finding 30**).

Regarding the study programme Informatics Engineering the number of staff is sufficient for the student body. However, there is a limited number of academic staff members holding (or pursuing) a Ph.D. degree generally, and the highest-ranking seniority is associate professor. Consequently, the academic staff has produced a smaller number of research publications, as well as fewer cited publications indexed in sources such as ISI and Scopus. While the university supports research, publication, and internationalisation, it will be challenging to make significant scientific progress with the majority of academic staff members holding only a Master's degree. This is because scientific advancement requires experience, skills, and resources that may not be available to all staff members. It is essential to ensure that the study programme has enough associate professors or professors in the near future to provide leadership and support for research, teaching, and curriculum development. The experts recommend appointing a senior-level researcher to lead or consult with the study programme (**Finding 31**).

Apart from the SOP of the university, the faculty/department needs to adopt both short-term and long-term strategies to ensure systematic academic professional development and levelling up teaching staff. More structured programmes are necessary to encourage research collaboration among academic staff, such as mentor-mentee programmes that pair seniors with juniors and strengthening research group activities. Moreover, there should be increased participation in international research/collaboration activities (see Findings above).

The number of lecturers in Information System is sufficient to handle the number of students. However, it would be helpful to strengthen the teaching staff to be able to include the above-proposed topics (see Chapter 1) in the study programme. For the courses in the field of business and management, cooperation with the neighbouring faculty should be arranged.

The teaching body in the Biotechnology programme is well-staffed, with a very good ratio of students per lecturers, allowing time for the lecturers to perform both in lecturing and research. Moreover, the qualification of the personnel is high compared to the national average, as the majority holds a Ph.D. degree. The lecturers teach topics related to their studies and their expertise, maximising thus the efficiency of their lecturing.

Conclusion

The criterion is fulfilled.

6. Learning resources and student support

Bachelor's/Master's 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.
[ESG 1.6]

Description

The SER lists a number of material resources that are available to students at EUU, including classrooms, a library, several laboratories equipped with software programmes, an e-learning studio, sports facilities and a canteen. There are seats, wheelchair-accessible ramps and parking areas with blue markings for students with special needs. Support counselling is offered to students with special needs or students in special life situations.

EUU's library subscribes to 67 international and national journals. Students can request further acquisitions for the library by filling out a form. The respective head of each study programme plans the material resources needed for their section and submits them to the librarian for material resources. The librarian will publish the available material resources in a repository, which will then be accessible by lecturers and students.

Support and guidance are offered in three stages: 1) Once a new cohort of students has been on campus for two weeks EUU conducts activities such as Introduction to Campus life, ESQ (Emotional Spiritual Quotient) training, and State Defense Training; 2) To support students during their studies, EUU provides the following: Each student is assigned an Academic Advisor. The Advisors' duties as set in EUU's Education Guidelines cover the fields of academia, personality development, social aspects, culture, sports, mental spirituality, and welfare. In addition, the university has a Guidance and Counselling Unit. EUU also provides scholarships (10 types), subsidies and mentors for activities like competitions, trainings and student exchange; 3) Before graduation, EUU's Career Centre Unit offers debriefing programmes on soft skills (e.g. job interviews, CV writing) and also provides students with job vacancies.

Experts' evaluation

Independent study is an important part of education, as it allows students to deepen their understanding of the topics they learn in class, practice their skills, and prepare for exams. Reliable and fast internet access is essential for independent study and academic success, as it enables students to access online resources,

communicate with their instructors and peers, and submit their assignments. However, many areas on campus have poor or no Wi-Fi signal, which hinders students' productivity and learning. Therefore, internet access should be improved throughout the campus by installing more access points, upgrading the bandwidth, and ensuring regular maintenance (**Finding 32**).

In the field of study/lectures, students have access to lecture rooms, computers and also the library. Online, access to important scientific publications is granted through the students' university account, which is important for the scientific research during the Bachelor's thesis. Here, there is obviously a cooperation with the University of Arizona. The e-library offers the students access to many journals. The university may decide to extend its journal coverage in the future, depending on its focus on scientific work in the curriculum or the staff requirements.

Expanding individual study spaces at the campus should be a priority, as it allows students to learn collaboratively with their peers, exchange ideas, and offer mutual support. Additionally, to facilitate students' access to computer laboratories, it is recommended that they are made available outside of class hours without requiring a request for access, and that the opening hours are extended (**Finding 33**). The current laboratories are suitably equipped for the class size and contain appropriate software for the modules.

The students and lecturers were positive about the various locations of the university in and around Jakarta, but this is associated with a lot of travel time and costs. Here the experts would think that it is worth checking whether the study courses can be aligned individually per location and/or whether further teaching staff per location can be gained.

Although the syllabi are well-structured and provide crucial information about the modules to students, the availability to the students and the public should be improved (see Chapter 7).

While academic advisors offer guidance to students progressing in their studies, the support for international students can be improved, as e.g., some lecture materials are currently unavailable in English and require translation from Indonesian by the students themselves.

Conclusion

The criterion is fulfilled.

7. Information

Bachelor's/Master's 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]

Description

Information on the general profile, curriculum, and lecturers is available on the respective websites of each study programme.

Experts' evaluation

Generally, the university provides information to its students as well as stakeholders and to prospective students. The students and alumni the experts talked to during the site visit felt well informed at the beginning of

and during their studies. All processes (expect the complaints system, see Chapter 3) appear transparent and sufficiently and well regulated.

There are however two aspects that need improvement, especially in view of the necessary transparency required for higher education programmes.

First, the experts noticed during the review process discrepancies between the published information on the programmes – including the individual learning outcomes, the list of courses, the content of the course descriptions – either on the website or in the different documents provided to the experts (e.g. informative summative curriculum vs. individual course plans/descriptions). This needs to be checked for consistency, corrected and missing information must be published (**Finding 34**).

Second, even though the students mentioned that they feel well-informed, there is a caveat: information is mostly only available in Indonesian and not in English. The university provided the experts with information in English (translations) but this is not publicly available on the university website. This limits the potential for international cooperation, international students and exchanges. Full information on the programmes including the courses descriptions should therefore be made available on the public website in English (**Finding 35**).

Conclusion

The criterion is partially fulfilled.

V. Recommendation of the panel of experts

The panel of experts recommends accrediting the study programme “Informatics Engineering” (Bachelor), “Information System” (Bachelor) and “Biotechnology” (Bachelor) offered by Esa Unggul University each with conditions.

Findings

For Informatics Engineering

1. Elective courses should be transparently grouped with the field of study courses according to the specialisations.
2. Elective courses that are spread across semesters 4 and 7 must be organised to ensure that all students complete the necessary competencies related to their specialisation, particularly if they choose to pursue the MBKM programme in the seventh semester.
3. The fit of the graduate profiles, the specialisations and the specific related competencies should be checked.
4. The course descriptions must be improved: more details must be included, consistency must be ensured, the level of detail must be comparable between the courses (e.g. similar number of learning outcomes for courses with the same number of credits), subtopics must be depicted, references must be updated.
5. The methods of assessments should be improved and cover all competency levels specified in the course learning outcomes.
6. The current rubrics used to evaluate undergraduate thesis deliverables should be reviewed in order to raise the quality of the thesis reports.
7. A second assessor should be assigned to evaluate student projects, including the thesis report.
8. The latest technology trends in computing such as Cloud Computing, Real-time Computing, UI/UX, Design Thinking, DevOps, and Site Reliability Engineering (SRE) must be included in the curriculum and depicted accordingly in the relevant course descriptions.

For Information System

9. The curriculum must be updated to include the latest trends and developments in the field including agile methods for software development or project management, design thinking approaches, digitalisation of the economy, new business models and digital business, architecture models, architecture styles, enterprise architecture management, cloud computing, software-as-a-service, IT security, social media management, social data analytics. The topics must be depicted accordingly in the relevant course descriptions.
10. The literature sources used in the study programme must be updated.
11. The curriculum must include basic knowledge of business and management; it must be depicted accordingly in the relevant course descriptions.
12. The research methods taught to students must be improved: the course Research Methodology must give an overview of the different kinds of research methods (including literature review and design science research methodology) and highlight their strengths and weaknesses.

13. The course descriptions should be improved and provide more detail on the specific learning objectives, competencies and content of each course.

For Biotechnology

14. The order of courses must be reviewed in order to provide the fundamental knowledge first and the applications to follow.
15. Instrumental analytics as well as modern technologies (such as Next Generation Sequencing and DNA synthesis) must be included in the curriculum and depicted accordingly in the relevant course descriptions.
16. The topics of risk management, good labour practices (GLP) and good manufacturing practices (GMP) should be included in the curriculum.
17. The university should offer the students the possibility to gain industry-recognised certification e.g. good labour practices (GLP), good manufacturing practices (GMP), biosafety manager, chemical risk manager, IT security.
18. The university should reflect on the unique profile of the programme and depict it accordingly in its marketing and adapt the curriculum accordingly (broad topics vs. specialisation).
19. The credits allocated to the final thesis should be reviewed and increased to reflect the actual workload of the students.

For all programmes (except Finding 31)

20. The university must improve its process of continuous improvement in order to reflect the state of the art of each programme by better integrating the labour market, systematically involving students' and alumni feedback beyond surveys, and fully closing the Plan-Do-Check-Act circle.
21. More student-centred learning approaches should be introduced including by changing the infrastructure set-up in class where necessary.
22. The university should reflect on the use of different teaching methods and blended learning and develop a coherent didactical concept for the use of digital teaching. Assessment methods should be better linked to teaching methods and take into account current challenges related to artificial intelligence and plagiarism.
23. More practical training should be included in the curricula.
24. Students should be better informed of the assessment regulations and procedures.
25. The complaints and appeals procedure must be formalised (e.g. SOP) and better communicated to students.
26. The university must develop a clear concept regarding the internships in the curricula. The difference between the short compulsory internships and the long MBKM-based elective internships and information on the respective duration and workload must be made transparent in the course descriptions. The university must ensure that the competencies gained in the long MBKM-based elective internship correspond to the specific courses being replaced. It must ensure that the learning outcomes of the specialisations can be reached even if some of their courses are replaced with a long internship.
27. The university and faculties should provide additional research support and incentives for publications at least in international, peer-reviewed journals and at best in Q1- and Q2-ranked journals.
28. The university and faculties should develop a strategic plan and provide more support for lecturers moving up the academic ladder (including completing a Ph.D. and methodological training).

29. The university and faculties should support the development of English competencies among its administrative and academic staff.
30. Junior lecturers with a Master's degree should receive additional training in pedagogic skills.
31. A senior-level researcher should lead or consult with the study programme Informatics Engineering.
32. (Wireless) Internet access should be improved throughout the campus.
33. Students should have better and easier access the facilities and to additional individual study spaces.
34. The university must check the published information on the programmes including the learning outcomes, the list of courses, and the course descriptions for consistency and publish the correct information, where missing.
35. Full information on the programmes including the courses descriptions should be made available on the public website in English.