ASIIN Seal

Accreditation Report

Bachelor's Degree Programme
Meteorology
Oceanography

Provided by
Institute of Technology Bandung

Version: 07.12.2021

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Bachelor Meteorology		ASIIN		FA 11
Bachelor Oceanography		ASIIN		FA 11
Date of the contract: 20.01.2020 **Submission of the final version of the self-assessment report:** 07.07.2020 **Date of the onsite visit:** 27.-30.09.2021 **at: online**				
Peer panel: Prof. Dr. Andreas Bott, University Bonn Prof. Dr. Hans-Jürgen Brumsack, University Oldenburg Johann Janssen (Student), University Hannover Prof. Dr. Clemens Simmer, University Bonn				
Representative of the ASIIN headquarter: Dr. Michael Meyer				
Responsible decision-making committee: Accreditation Commission for Degree Programmes				
Criteria used: European Standards and Guidelines as of 15.05.2015 ASIIN General Criteria as of 28.03.2014				

[1] ASIIN Seal for degree programmes

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

Subject-Specific Criteria of Technical Committee 11 – Geosciences as of 09.12.2011	

B Characteristics of the Degree Programmes

a) Name	Final degree (original/English translation)	b) Areas of Specialization	c) Corresponding level of the EQF[3]	d) Mode of Study	e) Double/Joint Degree	f) Duration	g) Credit points/unit	h) Intake rhythm & First time of offer
B.Sc. Meteorology	Sarjana Meteorologi		Level 6	Full time	--	8 Semester	144 SKS/ 200 ECTS	1998
B.Sc. Oceanography	B.Sc.A.		Level 6	Full time	--	8 Semester	144 SKS/ 200 ECTS	1998

For the Bachelor's degree programme Meteorology the institution has presented the following profile:

Graduates should become reliable professionals, leaders, and agents of change in society, governmental agencies, and organizations. The graduates are prepared to meet the highest standards to work in both operational meteorology and industrial fields related to weather and climate.

Through the mastering of basic principles in meteorology and climatology, graduates are able to become a professional in operational meteorology and industrial fields related to weather and climate risks (e.g. renewable energy, hydro-meteorological hazard and disaster, climate change), and to pursue a career as researcher in atmospheric science field.

Graduates are able to contribute in solving hydro-meteorological disasters and environmental related issues to support a sustainable development.

Graduates uphold great ethics in professional and academic fields and are capable of creative and critical thinking.

Graduates are capable and open for improvement by pursuing higher education in both local and foreign institutions/universities.

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

Learning outcomes:

- Able to use basic science and mathematics as the foundation to understand principles of Meteorology
- Able to describe the atmosphere and weather/climate phenomena
- Able to demonstrate his understanding and basic knowledge on basic meteorology to explain weather/climate phenomena
- Able to explain the basic principles of weather observation, including the types, function, and standard for measuring weather and climate parameters
- Able to utilize both conventional and non-conventional instruments to obtain data and information about the atmosphere
- Able to process big data for weather and climate to understand weather and climate phenomena
- Able to operate computational software in accordance to the algorithms learned to solve standard scientific problems in meteorology
- Able to design a weather simulation and/or weather interaction with the environment as applications in meteorology
- Able to interpret and analyse the results of data processing and/or simulation to obtain information and/or new knowledge for meteorological issues
- Having the basic ability in verbal communication and able to write proper scientific reports
- Having a good knowledge on the contribution of meteorology for solving environmental problems, especially issues related to hydro-meteorological disaster and its mitigation
- Able to work effectively in team and individually
- Having good responsibility and ethics in both academics and professional field
- Able to show the will for continuous self-improvement and the readiness to pursue higher education.

For the Bachelor's degree programme Oceanography the institution has presented the following profile:

Programme Education Objectives

- Strong determination in the field of marine exploration and exploitation by applying a good basic concept in oceanography and have a strong concern to the healthy and sustainability of marine environment.

- Professionals who are adaptive, competitive and progressive towards the development of science and technology, as well as showing a characteristic of broad-minded human being.
- An ability to work in a team effectively, being creative and innovative, and willing to conduct lifelong learning.
- Professional and ethical responsibilities with high moral integrity, which strengthens awareness to address wise solutions and to solve problems on the local and global societal context.
- An ability to create graduates who are adaptive, competitive, and anticipatory towards the development of science and technology, as well as showing a characteristic of broad-minded human being.
- An ability to conduct reliable and competitive research activity in oceanography, which supports marine exploration and exploitation of Indonesian maritime continent.

Programme Learning Outcomes

- Possessing strong basic knowledge in sciences and oceanography to be able to follow the development and application of knowledge in order to solve oceanic problems. Furthermore, to prepare graduates for master and doctoral degree.
- Possessing ability in numerical modeling, specifically in marine and hydro- oceanographic survey fields.
- Being able to conduct good communication, both orally and in writing using the latest information technology.
- Possessing earth science and technology knowledge, and also economic, societal, and heritage knowledge to improve flexibility in working world.
- Being able to cooperate in building networks with other disciplines.
- Possessing good basic sciences (mathematics, physics, chemistry, biology, and geology) as a foundation to apply it to understand principal oceanographic processes and to comply with the development of science and technology.
- Comprehensively engage with basic phenomena in oceanography especially in -- yet not limited to -- the scale area of Indonesian seas.
- Having an ability to apply general oceanography knowledge to provide good and sustainable solutions in order to support the exploration and exploitation of marine resources as well as mitigation and adaptation of hazards.
- Having an ability to design and to conduct oceanographic observations and related ocean environmental surveys with the support of good equipment mastery.
- Having an ability to process, analyze, and interpret observation data and/or remote sensing.

- Having a strong ability to utilize or modify mathematical models for the reconstruction and prediction of marine phenomena.
- Capable to conduct basic laboratory analysis to measure, test, and identify physical, chemical, and biological oceanography parameters.
- Having a variety of intra- and inter-personal skills such as, but not limited to:
    - Being able to work independently or collaboratively in a team,
    - Display competence in oral and writing skills,
    - Demonstrate critical and innovative thinking.
- Work with professional responsibilities and high ethical-moral integrity.

C Peer Report for the ASIIN Seal

1. The Degree Programme: Concept, content & implementation

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

Evidence:

- Academic Handbook
- Self-Assessment Report
- Discussions with programme coordinators and representatives of the labour market

Preliminary assessment and analysis of the peers:
The study aims and intended learning outcomes of both programmes defined by the university correspond to learning outcomes relevant to level 6 of the European Qualifications Framework. Learning outcomes are accessible to students, staff members, and all interested stakeholders on the faculty web site. These objectives were discussed in staff meetings with the faculty team and students. The learning outcomes have been formulated additional referring to vision and mission of the Institute of Technology Bandung, the Indonesian Qualification Framework (IQF), National Standards for Higher Education and discussion results with internal and external stakeholders.

The peers referred to the Subject-Specific Criteria (SSC) of the Technical Committee for Geosciences. They assess that in both programmes students should have additionally basic knowledge and understanding of the essential features, processes, materials, history and the development of the Earth and of the of the key aspects and concepts of geology concerned to the specific aspects of meteorology or oceanography.

From the point of view of the panel both qualification profiles offer good chances on the labor market for the graduates. Especially as both disciplines should have a tremendous meaning for Indonesia due to its geographical circumstances and ITB is one of only three universities offering study programmes in meteorology. The alumni surveys confirms this assessment as graduates find jobs in governmental institutions and in the private sector in

an appropriate time. Due to the geographical circumstances in Indonesia both disciplines are core fields for the

Criterion 1.2 Name of the degree programme

Evidence:

- Websites of the degree programmes
- Self-Assessment Report

Preliminary assessment and analysis of the peers:
The titles of both programmes are published on the subject specific webpages. The information about the programmes are published in Indonesian and English language. The panel confirmed that the names of all programmes reflect the intended aims and learning outcomes.

Criterion 1.3 Curriculum

Evidence:

- The study regulations define the curriculum and the single modules.
- The module descriptions inform about the aims and content of the single modules.
- Objective-Matrices provided in the Self-Assessment Report, Appendix 5
- Discussions with programme coordinators, lecturers, business representatives, students

Preliminary assessment and analysis of the peers:
Originally, both programmes were combined in one study programme and there are still common courses after the separation. At the master level both disciplines are combined again.

The bachelor's degree programmes at ITB are implemented in two levels. The first level managed centralised by the university consists of two semesters with 36 SKS in total and is common for all programmes. In this level the basics in mathematics and natural science are taught but also introductions in informatics and engineering. Additionally, an English course is implemented and students get first impressions of scientific writing. This level intends to harmonise the heterogenic knowledge of students from school.

The second level consists of six semesters with 108 SKS in total and includes beside programme specific contents common topics about Religion and Ethics, Pancasila and Civic

Education, Environment, Management, Computational Thinking, Big Data Analysis, Artificial Intelligence, and Sustainability. The panel appreciates that these common aspects except for Religion, Ethics and Pancasila are related to specific aspects of meteorology or oceanography.

Regarding the second level of the Bachelor's degree programme in Meteorology the peers determine that the content of the curriculum is very broad including nearly all topics of meteorology, like dynamical, physical, tropical Meteorology, Hydrometeorology, boundary layer meteorology, environmental meteorology, weather prediction or observation. Combined are these topics with methods like data analysis, different modelling systems, climate information management or prediction methods. They learn from the programme coordinators that ITB try to motivate students with the broad range of themes and that all meteorological study programmes are similar structured.

The peers can follow this concept to give students an overview over the different field of meteorology and offer them the opportunity for a specialisation within the three elective modules. They appreciate that the elective modules are done with at least five students while in average 15 students are within one course. In summary the panel sees the study aims of the programme we implemented in the curriculum.

The peers learn about the bachelor's degree programme in oceanography that there is a competition with the faculty of civil engineering offering a programme in oceanography engineering. Due to the engineering aspects, this programme is more popular and the demand of students is much higher. Nevertheless, Out of the discussion with representative of the industry the peers got the impression that graduates of the programmes are very well prepared to the labor market regarding to their field specific competences. For individual students communication and personal skill could be improved but in total, the representatives of the industry find the graduates from ITB better motivated and better educated than from other universities.

The peers appreciate that an internship is implemented in the curriculum with regard to practical experiences of the students, even if it last only 2 weeks and is not mandatory. On But they heard from students about difficulties to find internships as most companies only offer internships for at least one month. From the point of view of the panel, it could be helpful to implement a longer internship in the curriculum and to award more credit points for it. Also a more intensive support by the faculty to find internships, e.g. with a list of cooperating companies, could help students.

From the point of view of the peers both programmes are structured very well. The curricula implement all the defined study aims and learning outcomes. The peers also welcome

that there are religious modules not only for the Islam religion but for all Indonesian religions as well. The committee gained the impression that the religion modules are in accordance with the principles of scientific research.

Criterion 1.4 Admission requirements

Evidence:

- Self-Assessment Report
- Study Guide
- Discussions during the audit

Preliminary assessment and analysis of the peers:
Student admission policies and entry requirements follow the Ministry Regulation of the Ministry of Research, Technology, and Higher Education (Ministry Decree No. 126 of 2016).

There are several different ways by which students can be admitted to a bachelor's degree programme:

The National Entrance based on Student Academic Performance Records (SNMPTN) is a university admission path followed by 62 National Universities in an integrated system. Prospective students with outstanding academic achievements during the first 5 (five) semesters in senior high school and have consistently demonstrated academic excellence are offered the opportunity to become students in nationally selected national university study programmes

Students who are failed the first admission scheme (SNMPTN) can apply to the second entry option called SBMPTN. In this entry option, prospective students can apply one to three study programs at selected national universities. However, only one study program may be accepted by students based on the graduation rate determined by the study program of the selected national university.

The third entry option is a Local University Entrance based on the outstanding performance of prospective students in various aspects, especially national-level achievements of students in the fields of sports, arts or science. In order to be eligible for this third entry option, all prospective students must first take the SBMPTN entrance examination as a result (SBMPTN test score) will be used together with each national-level achievement obtained for assessment.

The auditors find the terms of admission to be binding and transparent. They confirm that the admission requirements support the students in achieving the intended learning outcomes.

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

As the university waived any comments the peers confirm their preliminary assessment.

2. The degree programme: structures, methods and implementation

Criterion 2.1 Structure and modules

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Discussions with programme coordinators, teaching staff and students

Preliminary assessment and analysis of the peers:

The structure of the programmes under review is clearly outlined on the specific websites for each study programme. The programmes consists of modules, which comprise a sum of teaching and learning. The module descriptions are also published on the subject specific website. Based on the analysis of the sequence of modules and the respective module descriptions the peers concluded that the structure of both programmes ensures that the learning outcomes can be reached. The programmes also offers several elective courses, which allows students to define an individual focus. Based on the analysis of the curriculum and the module descriptions the peers confirmed that the objectives of the modules and their respective content help to reach both the qualification level and the overall intended learning outcomes.

In order to support the international mobility of students the faculty has established several student exchange programmes with international universities and offers organizational and financial support for students studying abroad. Especially in the oceanography programme students use the opportunities to study abroad.

Criterion 2.2 Work load and credits

Evidence:

- Self-Assessment Report
- Study plans of the degree programmes
- Module descriptions
- Study Guide
- Discussions during the audit

Preliminary assessment and analysis of the peers:

Based on the National Standards for Higher Education of Indonesia (SNPT), both programmes use a credit point system called SKS. In comparison to ECTS credit system, wherein 1 ECTS equals 25-30 hours of students' workload per semester, it is determined that 1 CSU is awarded for 170 minutes of student workload per week and the relation between the different kind of learning (contact hours, self-studies) is fixed. With a duration of 16 weeks per semester one SKS correspond to 45,3 hours of student workload. For a bachelor's degree programme with 145 CSU the total time of study is round 6500 h in four years with an average of some 800 hours per semester. For bachelor's degree programmes a possible range from 140 to 150 SKS is defined by governmental regulations.

The peers welcomed the Indonesian system wherein the student's workload per semester dependents on their average grades in the former semester. The students' individual study plans are indeed different from each other, but have to be approved by their academic advisors. The average workload per semester is 18 SKS. The real workload of the individual students may range from 9-24 SKS depending on their performance in the former semester.

Therefore could be difficult to schedule common lectures like laboratory work and the peers can understand that in some cases practical exercises are scheduled in the evening.

The peers also positively noted that the module handbook describes consistently in all modules the credit points and the workload distinguishing between contact time and time of self-study

Comparing to the objectives and the content of the courses the workload defined for the single modules seems to be realistic for the peers besides for the internships and the final theses. The students confirmed this impression in general. The peers welcomed that in case of an overloaded workload students may give directly feedback to the lecturers who consider their remarks.

Criterion 2.3 Teaching methodology

Evidence:

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

Preliminary assessment and analysis of the peers:
The staff members of ITB apply various teaching and learning methods like interactive lecture, small group discussion, demonstration, collaborative learning, case study, project based learning, laboratory practice, presentation and software simulation. The panel sees in both programmes the beginning of a student oriented learning and teaching system and welcomed that the university want to increase the student centred teaching methodologies

The peers can understand the experiences of the teaching staff that it is much more difficult to motivate students in online lectures during the covid pandemic.

Criterion 2.4 Support and assistance

Evidence:

- Self-Assessment Reports
- ITB Regulation for Academic and Student Affairs
- Discussions during the audit

Preliminary assessment and analysis of the peers:
ITB offers a comprehensive advisory system for all undergraduate students. At the start of the first semester, every student is assigned to an academic advisor. He/she is a student's first port of call for advice or support on academic or personal matters.

The role of the academic advisor is to help the students with the process of orientation during the first semesters, the introduction to academic life and the university's community, and to respond promptly to any questions. They also offer general academic advice, make suggestions regarding relevant careers and skills development and help if there are problems with other teachers. The students confirm during the discussion with the peers that they all have an academic advisor.

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

In addition, there are tutorials for several compulsory courses in order to support students' learning activities. Tutors are selected from senior students with excellent academic records and good tutoring skills.

All students at ITB have access to the digital academic information system (SI-X). The students' profiles (student history, study plan, academic transcript and grade point average/GPA, lecturer evaluation, course list) are available via SI-X.

ITB provides several services to support its students. This includes a Career Centre, a Language Centre, Health Services (Bumi Medika Ganesha), a Health Clinic, a Sports Centre, and Student Dormitories. Finally, there are several student organizations at ITB.

The peers notice the good and trustful relationship between the students and the teaching staff; there are enough resources available to provide individual assistance, advice and support for all students. The support system helps the students to achieve the intended learning outcomes and to complete their studies successfully. The students are well informed about the services available to them.

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

As the university waived any comments the peers confirm their preliminary assessment.

3. Exams: System, concept and organisation

Criterion 3 Exams: System, concept and organisation

Evidence:

- Self-Assessment Reports
- Module descriptions
- ITB Regulation for Academic and Student Affairs
- ITB Academic Calendar

Preliminary assessment and analysis of the peers:

According to the Self-Assessment Reports, the students' academic performance is evaluated based on their attendance and participation in class, their laboratory works and reports, assignments, homework, presentations, mid-term exam, and the final exam at the end of each semester. The most common assessment form are written examinations in the middle and at the end of the semester and quizzes; however laboratory work, assignments

(reading, small projects, simulations, reports, etc.), presentations, seminars, and discussions can also contribute to the final grade. Written exams, both closed books and open books, usually include short answers, essays, problem solving or case-based questions, and problem calculations. Some lecturers also provide multiple choice or true-false questions or matching questions in an exam or a quiz. The grade from laboratory work usually consists of laboratory skills, discussions, reports, and oral exams. The final grade is the result of the different activities in the course (e.g. laboratory work, mid-term exam, the final exam, quizzes or other given assignments).

In case of failing an exams students could rewrite it and even if students pass an exams the may repeat it voluntarily in order to improve the grade.

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

As the university waived any comments the peers confirm their preliminary assessment.

4. Resources

Criterion 4.1 Staff

Evidence:

- Self Assessment Report
- Staff handbook
- Discussions with programme coordinators and teaching staff

Preliminary assessment and analysis of the peers:

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

According to the Self-Assessment Report, the teaching staff in the faculty is organised in research groups. The oceanography research group consists 19 lecturers including two associate and seven assistant professors. The lecturers for the meteorology programme are organised in the atmospheric science research group with 17 lecturers in total including one associate and 8 assistant professors.

Staff members have the responsibility to teach and support the programs in not only undergraduate programmes, but also the related Master's and PhD programmes within the faculty. Currently there are 4 PhD students enrolled at the faculty. Most of the faculty members hold a PhD from either a reputable Indonesian or international university.

The peers learned that the government finance determine the number of staff for each programme based on the number of students.

All members of the teaching staff are obliged to be involved in teaching/advising, research and community service. As the peers learn during the audit, all teachers have a workload between 12 and 16 lecture hours per week. However, the workload can be distributed differently between the three areas from teacher to teacher. In all laboratories a special lab staff for supporting the student practice is involved.

The university support research activities of the teaching staff by giving incentives for publishing scientific articles in reputable international journals, financing participations on national and international scientific conferences and giving grants for research projects.

The peers appreciate that ITB strives to improve research projects of the teaching staff further on, despite the already established activities. Giving the teaching staff more time for research activities e.g. by implementing sabbaticals could be a step in this direction.

Over all the peers see an appropriate network of the university and the department with national and international research institutions.

Criterion 4.2 Staff development

Evidence:

- Self-Assessment Reports
- Staff handbook
- Discussions during the audit

Preliminary assessment and analysis of the peers:
The peers learn that ITB encourages training of its academic and technical staff for improving the didactic abilities and teaching methods. As described in the Self-Assessment Reports, faculty members and non-academic staff regularly participate in training or workshops organised by the Centre for Human Resource and Organization Development division of ITB. This division offers in-house training related to human resources development, management and organisation. It also offers tailor-made training for special cases.

Several programmes are offered to the faculty members in order to refine and develop their competencies (e.g. Applied Approach programme, Recharge programme from the Ministry of Education's Directorate General of Higher Education). The Applied Approach programme is designed particularly for junior faculty members to introduce various teaching methods, as well as syllabus and course content development. All teachers at ITB are obligated to attend the lecturer certification programme held by the Directorate General of Higher Education.

In addition, faculty members can further develop their competencies through several activities such as post-doctoral programmes, training, workshops, joint research, etc. Moreover, they are encouraged to present their research papers in national and international conferences, and to collaborate with colleagues from international universities.

The peers see that the teachers are satisfied with the internal qualification programmes at ITB and their opportunities to spend some time abroad to attend conferences, workshops or seminars. The university offers financial support for the lecturers to take part in international conferences.

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

Criterion 4.3 Funds and equipment

Evidence:

- Self Assessment Report
- online visit of the laboratories, lecture rooms, and the library
- Discussions with representatives of ITB management, programme coordinators, lecturers, business representatives, students

Preliminary assessment and analysis of the peers:

The peers were explained that financial sources for ITB originated from government funding, society funding, and tuition fees. The report provided an overview of the "operational budget" and the "research grants" for the Faculty. The operational funds were distributed to the Faculties and Schools of ITB based on a specific formula depending on the number of students. The salary for staff members included a basic salary from government and incentives depending on additional efforts of staff members. The management of ITB stressed that even if the contributions from private businesses decreased to zero due to bad economic developments, ITB would still be capable to maintain its operations.

The peers were convinced that the financial means were sufficient and secured for the timeframe of the accreditation.

The financing of the equipment is ensured mostly by external funds (third party money). Because the actual standard is only increasing slowly the peers noticed room for modernisation of the laboratory and software equipment. In general the panel sees the equipment of the laboratories adequate or even very well but the quantity of computer workstations seems not to match with the number of students. Therefore, the peers recommend to increase them. Also they learned that the access of the faculty to big data calculating capacity is comparing poor. As it is essential for research activities in both fields, meteorology and oceanography, to handle with big data the panel recommends to improve the access of the faculty to corresponding equipment.

The library offers students online access to a wide range of international literature and journals.

During the online visit the peers see only extremely small offices for the teaching staff and wonder where the advisory of the students take place. They recommend to offer sufficient office space for lecturers

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

As the university waived any comments the peers confirm their preliminary assessment.

5. Transparency and documentation

Criterion 5.1 Module descriptions

Evidence:

- Module descriptions:

Preliminary assessment and analysis of the peers:
The peers positively noted that the full set of modules descriptions is published for every degree programme under review. Hence, the module descriptions are available for all interested stakeholders. The peers examined the module descriptions and noted that the modules have comprehensible names and identification codes. The module descriptions inform in an adequate way about the person responsible for the each module, about the teaching methods and workload, about the intended learning outcomes and the content

of the modules, about admission and examination requirements, forms of exams and recommended literature.

Criterion 5.2 Diploma and Diploma Supplement

Evidence:

- Certificate of study programme is missing
- Transcript of Records of study programme is missing
- Diploma Supplement is missing

Preliminary assessment and analysis of the peers:
The peers confirm that the students of all three degree programmes under review are awarded a Diploma and a Diploma Supplement after graduation. The Diploma consists of a Diploma Certificate and a Transcript of Records. The Diploma Supplement contains all necessary information about the degree programme including acquired soft skills and awards (extracurricular and co-curricular activities). The Transcript of Records lists all the courses that the graduate has completed, the achieved credits, grades, and cumulative GPA. Within the documents statistical data as set forth in the ECTS User's Guide are included to allow readers to categorise the individual result/degree.

Criterion 5.3 Relevant rules

Evidence:

- Regulations for Academic and Student Affairs Institut Teknologi Bandung

Preliminary assessment and analysis of the peers:
The peers acknowledged that in the “Academic and Student Regulations” a full section on “Student Ethics” clearly defined the behavioural expectations ITB had towards the students. Furthermore, the section on “Academic Regulations” explained the rights and duties of ITB and students in detail. The auditors could see that all necessary rights and duties of both ITB and students were clearly defined and binding for all relevant stakeholders. The “Academic and Student Regulations” document is published on the webside. However, this site can only be accessed inside campus through intranet as the peers had been told.

The peers understood that the students received all relevant course material in the language of the degree programme including the syllabi at the beginning of each semester. In addition, most information is also available on the intranet accessible for all students.

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

As the university waived any comments the peers confirm their preliminary assessment.

6. Quality management: quality assessment and development

Criterion 6 Quality management: quality assessment and development

- Self Assessment Report
- Regulations for Academic and Student Affairs Institut Teknologi Bandung, 2014.
- Discussions with representatives of ITB management, programme coordinators, lecturers, business representatives, students

Preliminary assessment and analysis of the peers:
The auditors discuss the quality management system at ITB with the programme coordinators and the students. They learn that there is a continuous process in order to improve the quality of the degree programmes and it is carried out through internal (IQA) and external quality assurance (EQA). IQA encompasses all activities focused on implementing measures for improving the teaching and learning quality at ITB. EQA focuses on both national and international accreditations.

The Quality Assurance Unit conducts the internal quality assurance system at ITB. This unit determines the criteria, suitable measures, and its indicator as well as the quality assurance processes for all study programmes at ITB.

Internal evaluation of the quality of the degree programmes is mainly provided through student and alumni surveys and was implemented in 2008. Students give their feedback on the courses through online questionnaires at the end of each semester. Giving feedback on the classes is compulsory for the students; otherwise, they cannot access their account on the ITB digital platform. Additionally, students' feedback is collected by distributing a mid-semester questionnaire. The students' feedback from mid-semester questionnaires is normally addressed directly by the lecturer by discussing it with the students. This feedback gives the chance to lecturers to improve their teaching practice.

Furthermore, ITB regularly conducts an alumni study. By taking part at this survey, alumni can reflect on their educational experiences at ITB and their professional career. This tracer study is organised by ITB's alumni organization and the results are annually published

Finally, each year there is an undergraduate exit survey regarding their study experiences in ITB. The exit survey focuses on three main areas: quality of academic atmosphere, contribution of ITB education on learning and development on certain skills, and students' satisfaction with services and facilities.

The curriculum evaluations are held during the final exam week. A compilation of the students' feedback is sent to the respective lecturers. As the students point out during the discussion with the peers, there is also the possibility to give a direct and informal feedback to the teacher.

During the audit, the peers learn that if there is negative feedback, the Dean or the head of the research group talks to the respective teacher, analyses the problem, and offers guidance. The auditors gain the impression that students' feedback is taken seriously by the faculties and changes are made if there is negative feedback. Additionally the peers notice that the results of the questionnaires are discussed with the students directly.

As the peers consider the further development of the degree programmes to be very important, they appreciate the existing culture of quality assurance. In summary, the peer group confirms that the quality management system is suitable to identify weaknesses and to improve the degree programmes. All stakeholders are involved in the process.

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

As the university waived any comments the peers confirm their preliminary assessment.

D Additional Documents

No additional documents needed

E Comment of the Higher Education Institution

The university waives any comment.

F Summary: Peer recommendations

The peers recommend the award of the seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Meteorology	Without require-ments	-	30.09.2027
Ba Oceanography	Without require-ments	-	30.09.2027

Recommendations

For all degree programmes

E 1. (ASIIN 4.3 It is recommended to improve the number of computer workstations for students and the access to big data calculating capacity for the institute meteorology and oceanography.

E 2. (ASIIN 4.3) It is recommended to offer sufficient office space for lecturers.

G Comment of the Technical Committee 11 - Geosciences

The Technical Committee discusses the procedure and follows the assessment of the peers without any changes.

H Decision of the Accreditation Commission (07.12.2021)

The accreditation commission discusses the procedure and follows the assessment of the peers and the technical committee without any changes.

The accreditation commission awards the demanded seals as follows:

Degree Programme	ASIIN-seal	Subject-specific label	Maximum duration of accreditation
Ba Meteorology	Without require-ments	-	30.09.2027
Ba Oceanography	Without require-ments	-	30.09.2027

Recommendations

For all degree programmes

E 1.(ASIIN 4.3 It is recommended to improve the number of computer workstations for students and the access to big data calculating capacity for the institute meteorology and oceanography.

E 2. (ASIIN 4.3) It is recommended to offer sufficient office space for lecturers.

Appendix: Programme Learning Outcomes and Curricula

According to [….] the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the Bachelor/Master degree programme […]:

[…]

The university presented the following curriculum for the Bachelor's degree programme Meteorology:

Semester I				**Semester II**			
	Code	**Course Name**	**CU**		**Code**	**Course Name**	
1	MA1101	Mathematics I A	4	1	MA1201	Mathematics II A	4
2	FI1101	Elementary Physics I A	4	2	FI1201	Elementary Physics II A	4
3	KI1101	General Chemistry I A	3	3	KI1201	General Chemistry II A	3
4	KU1102	Introduction to Computational	3	4	KU1202	Introduction to Design and Engineering	3
5	KU1011	Indonesian Language: Scientific Writing	2	5	KU1024	English	2
6	KU1163	Introduction to Earth Sciences and Technology	2	6	KU1001	Sports	2
		Total	**18**			**Total**	**18**
Semester III				**Semester IV**			
	Code	**Course Name**	**CU**		**Code**	**Course Name**	
1	FI2183	Mathematical Physics IB	3	1	ME2201	Meteorological Observation	3
2	ME2101	Introduction to Meteorology and Climatology	3 (E)	2	MA2281	Elementary Statistics	3
3	MA2021	Matrices and Vector Space	3 (1)	3	ME2202	Meteorological Information System	3 (1)
4	ME2103	Computational Meteorology	3 (1)	4	ME2203	Numerical Methods in Meteorology	3 (1)
5	ME2104	Continuous Mechanics	3	5	ME2204	Physical Meteorology	3
6	ME2105	Dynamical Meteorology I	3	6	ME2205	Dynamical Meteorology II	3
		Total	**18**			**Total**	**18**
Semester V				**Semester VI**			
	Code	**Course Name**	**CU**		**Code**	**Course Name**	**CU**
1	ME3101	Satellite Meteorology	3 (1)	1	ME3202	Meteorological Data Analysis II	3 (1)
2	ME3102	Meteorological Data Analysis I	3 (1)	2	ME3203	Numerical Weather Prediction Method II	3 (1)
3	ME3103	Numerical Weather Prediction Method I	3 (1)	3	ME3204	Hydro-meteorological Modelling	2 (2)

4	ME3104	Hydrometeorology	2	4	ME3205	Boundary Layer Meteorology	3
5	ME3105	Synoptic Meteorology and Weather Analysis	3 (1)	5	ME3206	Environmental Meteorology	3
6	XXxxxx	Elective	6	6	XXxxxx	Elective	6
		Total	**20**			**Total**	**20**
Semester VII				**Semester VIII**			
	Code	**Course Name**	**CU**		**Code**	**Course Name**	**CU**
1	ME4101	Tropical Meteorology	3	1	ME4099	Final Project	6
2	ME4102	Weather and Climate Information Management	3	2	KU206X	Religion and Ethics	2
3	ME4097	Special Topics in Meteorology	3	3	KU2071	Pancasila and Civic Education	2
4	ME4098	Colloquium Meteorology	2	4	XXxxxx	Elective	3
5	XXxxxx	Elective	8				
		Total	19			Total	13

The university presented the following curriculum for the Bachelor's degree programme Oceanography:

Table 1.8 Example of Curriculum Update: List of Compulsory Course under Undergraduate Program in Oceanography in 2019

Semester I				**Semester II**			
No	**Code**	**Course Name**	**CU**	**No**	**Code**	**Course Name**	**CU**
1	MA1101	Mathematics IA	4	1	MA1201	Mathematics IIA	4
2	FI1101	Elementary IA	4	2	FI1201	Elementary Physics IIA	4
3	KI1101	General Chemistry IA	3	3	KI1201	General Chemistry IIA	3
4	KU1102	Introduction to Computation	3	4	KU1201	Introduction to Engineering and Design	3
5	KU1011	Indonesia Language: Scientific Writing	2	5	KU102x	English	2
6	KU1163	Introduction to Earth Sciences and Technology	2	6	KU1072	Introduction to Information Science B	2
				7	KU1001	Sports	2
Total			**18**	**Total**			**20**
Total CU in the First Year = 38							
Semester III				**Semester IV**			
No	**Code**	**Course Name**	**CU**	**No**	**Code**	**Course Name**	**CU**

1	OS2106	Mathematical Method for Oceanography I	3	1	OS2205	Mathematical Method for Oceanography I	3
2	FI2182	Mechanics B	3	2	FI2282	Thermodynamics B	3
3	OS2101	Introduction to Oceanography	3 (1)	3	MA2081	Religion and Ethics	2
4	OS2102	Fluid Mechanics	2	4	OS2201	Hydrodynamics	3
5	OS2103	Computational Oceanography	2	5	OS2202	Numerical Method in Oceanography	3(1)
6	OS2104	Biological Oceanography	3(1)	6	OS2203	Chemical Oceanography	3(1)
7	OS2105	Statistic for Oceanography	2	7	OS2204	Signal Analysis and Time Series	3
Total			**19**	**Total**			**20**
Total CU in the Second Year = 39							
Semester V				**Semester VI**			
No	**Code**	**Course Name**	**CU**	**No**	**Code**	**Course Name**	**CU**
1	OS3101	Geological Oceanography	**2**	1	OS3001	Environmental Oceanography	2(0.5)
2	OS3102	Analysis of Oceanographic Survey Data	3(1)	2	OS3202	Diving and Marine Navigation	3(2)
3	OS3103	Ocean Wave	3(1)	3	OS3203	Hydro-Oceanographic Survey	3(2)
4	OS3104	Ocean Modeling I	3(1)	4	OS3204	Oceanography of Indonesia	2
5	OS3105	Ocean Tide	3(1)	5	OS3205	Coastal & Ocean Management	2
6	OS3106	Ocean Current & Circulation	3(1)	6	OS3208	Marine Disasters and Mitigation	2
				7	OS4011	Longwave and tidal dynamics	3
				8	OS3207	Ocean Remote Sensing	3(1)
Total			**19**	**Total**			**20**
Total CU in the Third Year = 39							
Semester VII				**Semester VIII**			
No	**Code**	**Course Name**	**CU**	**No**	**Code**	**Course Name**	**CU**
1	OS4091	Colloquium	2(1)	1	OS4099	Bachelor Final Project	4(4)
2				2			
Total			**2**	**Total**			**4**
Total CU in the Forth Year = 6							