ASIIN Seal

Accreditation Report

Bachelor's Degree Programmes
Physics
Statistics

Provided by
Hasanuddin University

Version: June 27th 2025

Table of Content

A About the Accreditation Process

Name of the degree programme (in original language)	(Official) English translation of the name	Labels applied for [1]	Previous accreditation (issuing agency, validity)	Involved Technical Committees (TC)[2]
Program Studi Sarjana Fisika	Bachelor Programme in Physics (BPP)	ASIIN	-	13
Program Studi Sarjana Statistika	Bachelor Programme in Statistics (BPS)	ASIIN	-	12
Date of the contract: 30.05.2023 **Submission of the final version of the self-assessment report:** 11.02.2023 **Date of the onsite visit:** 28.02.2024 **at:** Makassar, Sulawesi, Indonesia				
Expert panel: Prof. Dr. Gert-Ludwig Ingold, University Augsburg Prof. Dr. Ulrich Stadtmüller, University Ulm Prof. Dr. Setyawan Purnomo Sakti, Brawijaya University Nurkholis Wahyudi Fachrudin, PT Sahabat Solusi Berkah Jihan Shafiyah ZT, Student at Brawijaya University				
Representative of the ASIIN headquarter: Dr. Natalia Vega				

[1] ASIIN Seal for degree programmes.

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

Responsible decision-making committee: Accreditation Commission for Degree Programmes	
Criteria used: European Standards and Guidelines as of May 15, 2015 ASIIN General Criteria, as of December 10, 2015 Subject-Specific Criteria of **Technical Committee 13 – Physics as of March 20, 2020** Subject-Specific Criteria of **Technical Committee 12 – Mathematics as of December 9, 2016**	

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
Bachelor Programme in Physics (BPP)	S.Si (B.Sc).	• Theoretical Physics and Computation • Materials and Energy • Electronics and Instrumentations • Optics and Medical Physics	6	Full time	No	8 Semester	244.8 ECTS/144 CP	Annually / 14 March 1983
Bachelor Programme in Statistics (BPS)	S.Si (B.Sc).	• Broad variety of elective areas • Finance and Insurance	6	Full time	No	8 Semester	244.8 ECTS/144 CP	Annually / 11 July 1996

Universitas Hasanuddin (UNHAS) is a public autonomous university located in Makassar, at the South of the Indonesian Island Sulawesi, which is the largest city in the region of Eastern Indonesia and the country's fifth-largest urban center. UNHAS is one of the largest universities in Indonesia. It was established on September 10, 1956. Currently, the university has fourteen faculties and a notable position in the QS World University Ranking 2023, where it ranks between 1001 and 1200. The university serves as a center of excellence, actively contributing to developing human resources, scientific advancements, technology and promoting art and culture.

The Faculty of Mathematics and Natural Sciences of UNHAS was first established in 1963. It consists of six departments: Physics, Statistics, Mathematics, Chemistry, Biology and Geophysics. The vision of the Faculty is “to become a center of excellence in the development of basic and applied science based on the Indonesian Maritime Continent (BMI) at the national level and recognized at the international level by 2030.”

For the **Bachelor’s degree programme in Physics** (BPP) the institution has presented the following profile in the self-assessment report:

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

“The vision of BPP is to attain international recognition as a premier institution in physics and its applications by the year 2026. To implement the vision, BPP has three missions, namely:

1. To deliver effective and high-quality physics education.
2. To actively engage in the development and research of physics and its real-world applications.
3. To apply the findings from physics research for the betterment of society.”

For the **Bachelor’s degree programme in Statistics** (BPS) the institution has presented the following profile in the self-assessment report:

“The vision of BPS is to establish itself as a center of excellence in the field of statistics for the development of humanity, sciences, technologies, arts and cultures based on the Indonesian maritime continent. In the Study Guide (Appendix B1) and website of the study program, BPS has defined its missions as follows:

Providing a quality learning process of statistics by focusing learning activities on students through various learning methods according to the content of each course based on the Indonesian maritime continent.

Carrying out quality research activities in the field of statistics at national and international levels with relation to the Indonesian maritime continent.

Organizing community service activities that are professional and in accordance with the competencies in the scientific field of statistics.”

C Expert Report for the ASIIN Seal

1. The Degree Programme: Concept, Content & Implementation

Criterion 1.1 Objectives and Learning Outcomes of a Degree Programme (Intended Qualifications Profile)

Evidence:

- Self-Assessment Report (SAR)
- Study Guide of BPP and BPS
- Module Handbooks
- Objective and Learning Outcomes-Courses Matrices
- Matrix Relation between PLO and ILO
- Mapping Courses with ILO
- Matrix Relation between ILO and ASIIN Subject Specific Criteria (SSC)
- Mapping Curriculum to ILO and Workload
- ILO'S Mapping to Teaching and Assessment
- University Website: https://www.unhas.ac.id/
- Discussions during the audit

Preliminary assessment and analysis of the experts:

The experts refer to the respective ASIIN Subject Specific Criteria (SSC) of Technical Committee 12 (Mathematics) and 13 (Physics), the learning module matrices for each programme and the modules as a basis for assessing whether the intended learning outcomes of the programmes under review correspond to the competences as outlined in the SSC.

The objectives and learning outcomes for each programme are described in the SAR (see below **Appendix**). In addition, the module handbook contains the learning outcomes for each module. According to UNHAS, the objectives and learning outcomes are updated every four years based on the online questionnaire, the results of tracer studies for alumni, and the results of the meeting forum with external stakeholders. The Programme Educational Objectives for both programmes are regularly reviewed through evaluations of

the Programme Educational Objectives (PEO), which are conducted every four years and involve faculty members, employers and graduates. In order to define the desired graduate profiles for BPP and BPS, a workshop was held involving internal and external stakeholders such as academic staff, alumni, students, professionals and industry partners. Moreover, the ILO of BPS take into account the aspirations of external and internal stakeholders, the institutional vision and mission, the recommendations of the Statistics Higher Education Forum (Forstat) and the Indonesian Mathematics Society (IndoMS), as well as the results of benchmarking with other institutions.

Four graduate profiles are defined for the **BPP**: academician, young researcher, problem solver and quality control. The graduate profile of the BPS shows the competencies, knowledge and skills that graduates must have in order to qualify as educators, statistical consultants or data analysts.

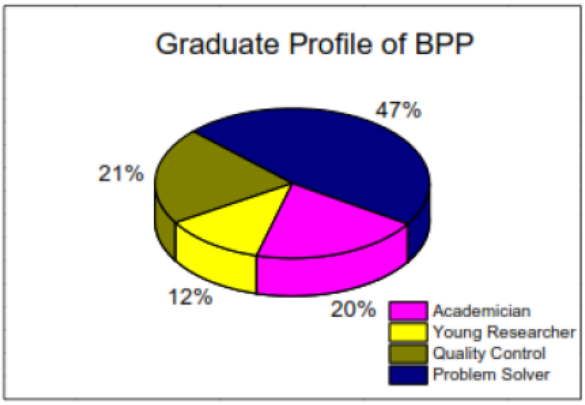
During the audit, the experts discuss with the programme coordinators the opportunities for the students of both programmes to continue their studies. They explain that for BPP students, they plan to open a medical physics programme, probably next year, as a professional programme to meet the needs of society in this area, as every hospital needs a medical physicist. For the BPS, they want to have a PhD programme in statistics and a new programme in data science in the future.

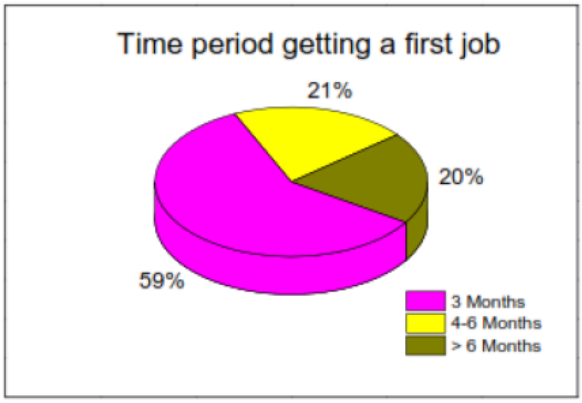
Quality audits are carried in form of the Audit Mutu Internal (AMI) internally every year and a ISO 9001 audit twice a year with regard to the assessment of Programme Learning Outcomes (PLOs), Course Learning Outcomes (CLOs), Intended Learning Outcomes (ILOs), resources and facilities.

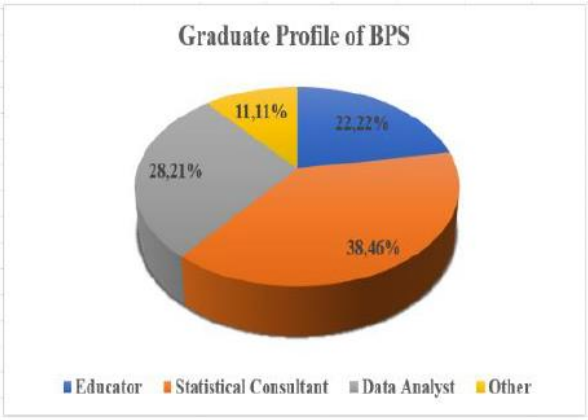
BPP conducted a trace study for alumni from 2017-2020 who are working in various fields to reflect on their educational experiences in physics, their competencies and skills, and their impact on their professional career paths. In addition, the study programme is conducting a tracer study to collect feedback from alumni and users on the Programme Learning Outcomes (PLOs). This study involves the systematic collection and analysis of data to provide evidence on the curriculum, learning processes and student performance, all aimed at assessing the achievement of PLO objectives.

Both degree programmes conduct tracer studies for alumni and employers through an online questionnaire system developed by the university. The alumni survey provides information on the employment distribution of graduates as well as the average waiting time for a job placement after graduation. For example, based on this study, the distribution of

job opportunities of BPP's and BPS's graduates and time period to get a first job is as follows:







The majority of BPP graduates are employed as problem solvers (47%), followed by quality controllers (21%), academicians (20%), and young researchers (12%). In most cases, graduates take 3 months to find their first job after graduation. The distribution of BPS graduates' jobs (see graphic Graduate Profile of BPS above) is dominated by statistical consultants (38%), followed by data analysts (28%) and trainers (22%). More than half of the graduates get a job in less than six months and only about 10% need more than 12 months to be employed.

With regard to the employment rate, UNHAS provides the following statistical data for BPP:

Year	Students graduation	Employment Alumni	Employment Rate
2017	54	40	0.741
2018	61	52	0.852
2019	56	47	0.839
2020	31	28	0.903
2021	56	38	0.678

For **BPS**, the employment rate is as follows:

Year	Students graduation	Employment Alumni	Employment Rate
2017	53	45	0.849
2018	43	38	0.883
2019	65	60	0.923
2020	51	41	0.882
2021	45	40	0.889

The survey on the Evaluation of Fresh Graduate Competency Achievement aims to collect information and feedback from fresh graduates of the BPS on the extent to which they perceive that they have acquired competences in statistics during their academic years. In addition to measuring the level of competence attainment, such surveys can help the Statistics programme to continuously improve the quality of the education it offers and to ensure that graduates are prepared to face the challenges of the statistics-related job market.

After reviewing the programme objectives and learning outcomes and discussing them with the various stakeholders, the experts conclude that the descriptions of the qualification objectives are comprehensive and include the competences achieved and the possible career opportunities for graduates. Based on matrices describing the relationship between learning outcomes and programme objectives, and the modules in which students learn the skills envisaged in the PLOs, as well as the relationship between the ILOs and the ASIIN Subject Specific Criteria (SSC), the expert group considers that the intended learning outcomes of the programmes are suitable for producing qualified graduates. The experts note that, in general, students and graduates appear to be satisfied with their respective programmes and feel well prepared for their future careers. They appreciate that the programmes have a clear strategy for improving the programmes in the future. During the interview, industry representatives highlighted the relevance of these programmes to industry in the eastern part of Indonesia.

However, the experts note that the learning outcomes of the two programmes are not available on the respective websites of the institutes on the UNHAS website. They should be anchored and published in a transparent manner so that they are available to students, lecturers and interested third parties. Therefore, the experts consider that the learning outcomes need to be made available to all stakeholders on the university's website.

Criterion 1.2 Name of the Degree Programme

Evidence:

- Self-Assessment Report (SAR)

- Module Handbooks
- UNHAS Regulation on “Opening, Merging, Closing, Transferring Management, And Changing The Name Of Study Programs At Hasanuddin University”
- Decision Dean of the Faculty of Mathematics and Natural Sciences UNHAS: “Recognition of the Credit Unit System (Credits) and Equalization of Assessment of The Form of Independent Learning Activities Independent Learning-Campus (BKP MBKM) at the Faculty of Mathematics and Natural Sciences (MIPA) Hasanuddin University”
- University Website: https://www.unhas.ac.id/
- Discussions during the audit

Preliminary assessment and analysis of the experts:
As stated in the SAR, the name of the **Bachelor of Science in Physics** (Program Studi Sarjana Fisika) is related to the terminology used by the Physical Society of Indonesia (PSI). **Bachelor Programme in Statistics** (Program Studi Sarjana Statistika) is in accordance with the regulations of the Minister of Education, Culture, Research and Technology number 32/2021 and consistent in all documents. Graduates of both programmes are awarded the title Sarjana Sains (S.Si) (Bachelor of Science).

The experts confirm that the English translation and the original Indonesian name of the bachelor’s degree programmes under review correspond with the intended aims and learning outcomes. They agree that the teaching and learning content and the competence profile are consistent with the proposed titles of both programmes.

Criterion 1.3 Curriculum

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- Study Guide of BPP and BPS
- Mapping Courses with ILO
- Mapping Curriculum to ILO and Workload
- ILO’S Mapping to Teaching and Assessment
- University Website: https://www.unhas.ac.id/
- Curriculum structure of BBP and BPS

- Curricula Overview
- Student Community Service
- Student Mobility Regulation
- Statistical Data about the progress of Studies
- Discussions during the audit

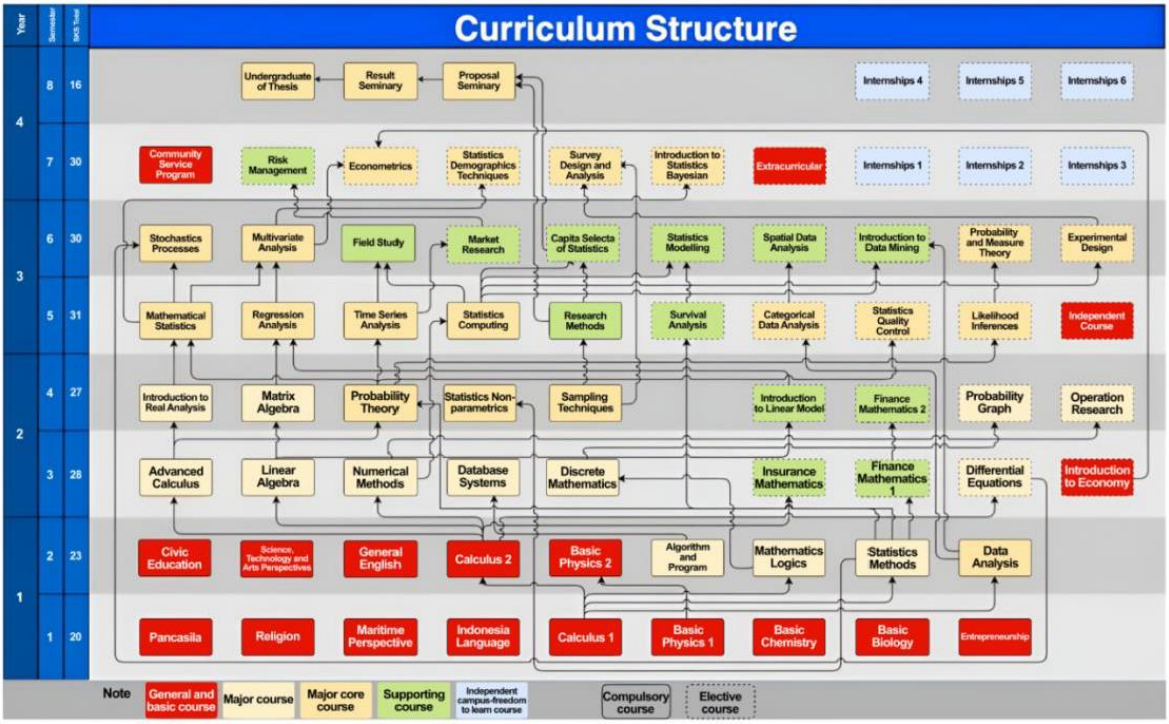
Preliminary assessment and analysis of the experts:

Curriculum Content and structure

According to the SAR, the curriculum of the BPP and BPS is based on the National Standards of Higher Education (NSHE) and the Indonesian National Qualifications Framework (INQF) level 6.

Both are four-year programmes (8 semesters), upon completion of which graduates are awarded a Bachelor of Sciences (B.Sc.). As stated in the SAR, students can study for a minimum of 7 semesters and a maximum of 14 semesters.

For BPS, the following curriculum structure is presented:



In both programmes, the first year consists of basic courses, especially compulsory national courses such as Indonesian and English language, religion, Pancasila and civic education,

and other mandatory courses required by the university, including basic science courses (basic physics, general biology, general chemistry) and basic mathematics.

In the **BPP**, the third and fourth semesters consist of compulsory courses that focus on developing the student's competence in the specific field. During the third year, BPP students take elective courses to broaden their knowledge in the core physics subjects. These courses are offered as practical courses by each laboratory. Semesters 7 and 8 include community service and the final project as requirements for completion of the degree.

The curriculum of the **BPS** is structured from basic and general courses to more advanced courses from the first to the fourth year. Elective courses are offered from the 3rd semester. The Community Service Programme is included in the 7th semester. An internship is also part of the BPS curriculum. The internship programme has been integrated into the 2020 curriculum as an adaptation of the Independent Learning Campus (MBKM) curriculum. It consists of six elective internship courses in semesters 7 and 8.

Regarding the curriculum of **BPS**, the experts discuss with the programme coordinators its structure. They explain that from third semester, they focus on the major courses, because in the first two semesters, students should complete the National and University's mandatory courses. From the third semester, some electives courses are also included each semester. In addition, due to changes in the internship programme regulation, the internship is going to be offered in the third year (semester 5 or semester 6) when all the compulsory courses are accomplished. Regarding the internship, the industry representatives are very satisfied with the programme and the good communication and interchange with the university. In general the programme is well structured and offers a broad variety of elective courses.

Community service is a compulsory requirement for Indonesian students to complete their studies. There are two types of community service: regular and thematic, which last at least six weeks. In the regular community service programme, students carry out work activities agreed with the local government programme in the area where the service is carried out. On the other hand, in the thematic community service programme, students participating in the community service programme arrive at the site with a pre-defined programme of work to be carried out.

During the audit, the experts learn that the **BPP** curriculum had recently been updated. The programme coordinators explain that this curriculum is not been implemented yet. In the new curriculum 2023, the module "Atomic and Molecular Physics" is now integrated in the third semester and not as before in the second semester in parallel with "Basic Mechanics"

and "Thermodynamics" (now called "Statistical Thermodynamics"). Instead, "Wave Physics" is included in the second semester and "Measurement Statistics" in the third semester. In addition, the module "Nuclear Physics" has been moved from the third semester to the fourth semester and the compulsory course "Entrepreneurship" has been moved from the first semester to the fourth semester.

For the **BPP** curriculum, the experts find the content of the first four semesters to be very compressed. As a consequence, courses which should be based on each other are taught in parallel, thereby unnecessarily making the learning process more complicated. For example, classical mechanics and atomic and molecular physics are both taught in the second semester and mathematical courses do not always provide the mathematical tools required by the physics courses in time. Students are only able to cope with this situation because of the dedicated support by the lecturers. The experts ask about the reason why all the compulsory courses of the programme are arranged only until the fourth semester, while the fifth and sixth semesters consist only of optional courses. The programme coordinators explain that this is in line with the university's policy, based on government regulations, to facilitate independent learning and learning outside the study programme within the framework of the "Independent Learning Campus" (MBKM) at UNHAS.

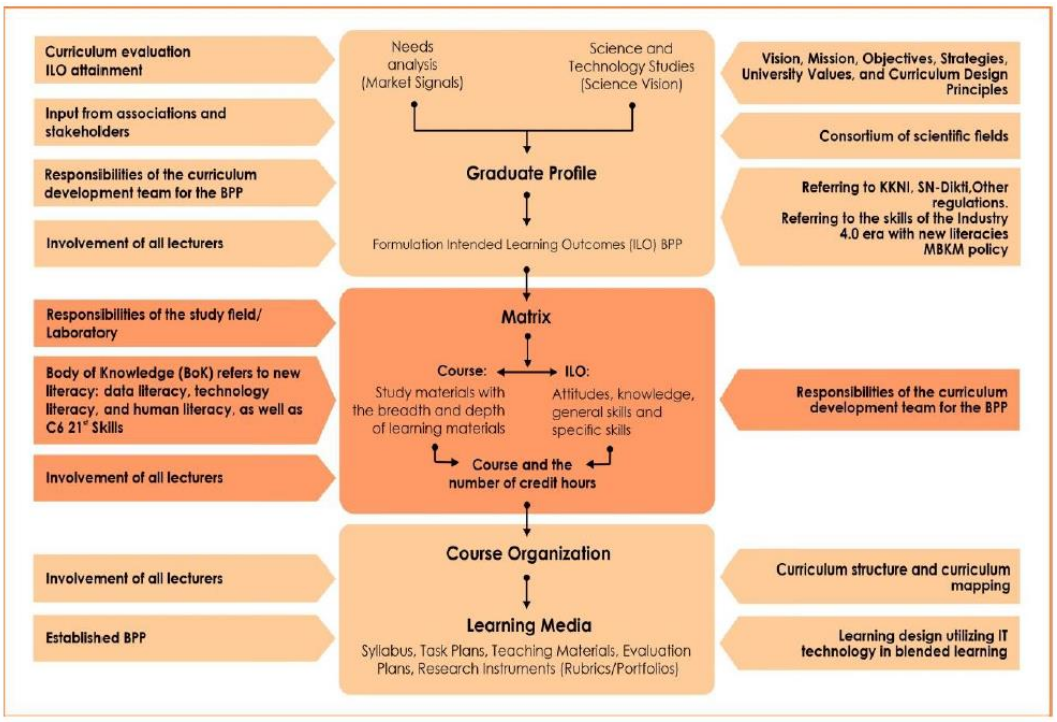
One of the main programmes of the Merdeka Belajar-Kampus Merdeka policy is to provide the right to study outside the study programme for three semesters. Students are given the freedom to take credits outside the study programme, three semesters in the form of one semester opportunity to take courses outside the study programme and two semesters to carry out learning activities outside the college. It is noteworthy to note that the MBKM is not compulsory. Students are free to choose whether they will take optional lecture out of campus or in campus. According to the findings of the experts, MBKM only requires to acknowledge the widening competence (out of campus study), in general, for at least 20 SKS (credit). Furthermore, the MBKM programme is not intended to reduce the core competence which the student must mastering.

In conclusion, the experts are of the opinion that the planned changes in the new curriculum of the **BPP** are going in the right direction, but that a realistic arrangement of the curriculum structure is desirable. Despite the constraints imposed by government decisions, the experts believe that the curriculum structure should be redesigned to make sure that the core competence can be achieved by the students with proper sequence and time. In particular, the number of compulsory courses in the third semester should be reduced making use of margins set by governmental regulations.

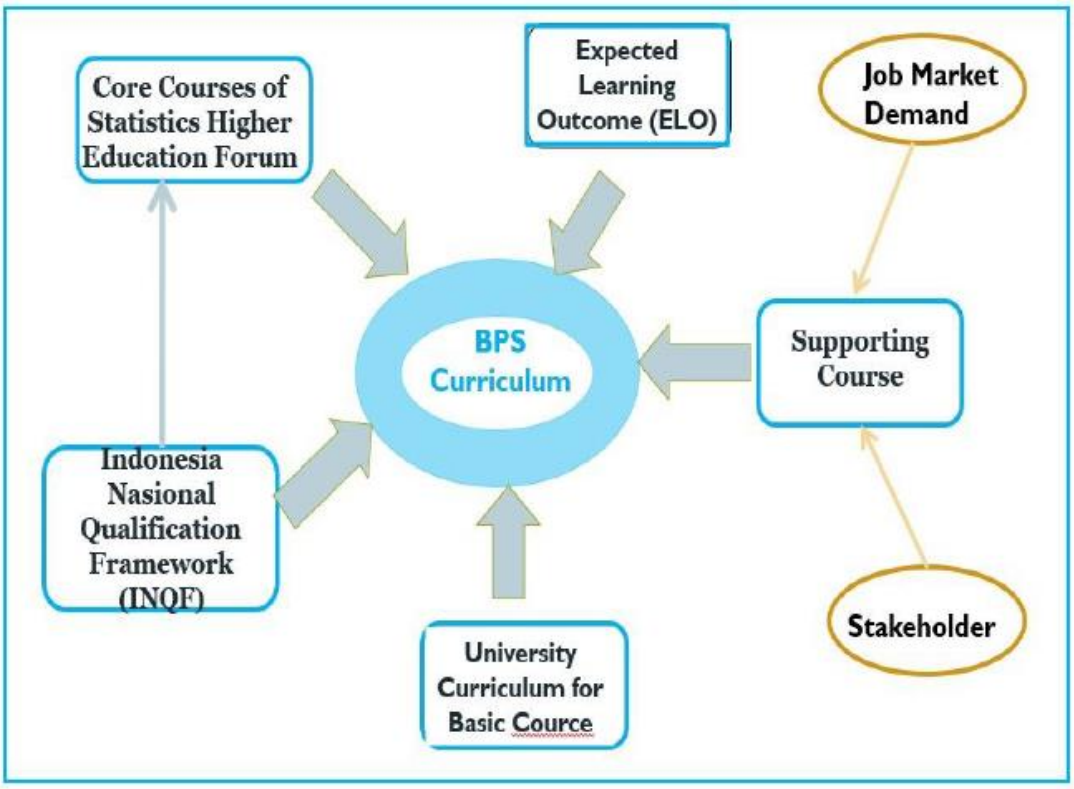
The industry representatives are satisfied with the students and graduates skills of both programmes under review. They showed strong analytical skills and are hard-working and fast learners. However, soft skills, especially communication abilities, are, in their opinion, missing and should be improved. Based on this feedback, the experts consider that soft skills could be emphasized more in the two degree programmes, for instance, by inviting alumni to provide workshops about this topic.

Periodic Review of the Curriculum

For the **BPP**, there is a curriculum development team that works on the design of curriculum documents. This stage comprises three sub-stages as follows. First, the profile of the graduates is defined. Then, the design team holds a workshop to get input from alumni and stakeholders about community needs and the relation between BPP and the world of work. The outcome of the workshop is the identification of desired skills of BPP alumni. At the end, Intended Learning Outcomes (ILO) are formulated. The evaluation processes of the curriculum review are shown in the following diagram:



The curriculum of the **BPS** is also reviewed every four years. The first stage is the drafting of the curriculum document, which starts with a needs analysis in order to obtain graduate profiles. ILOs are also formulated on the basis of these two results. The second stage is learning design. The following figure illustrates this process:



Curriculum development needs to be followed by a consistent implementation in the learning process and regular evaluation. The programme coordinators emphasise that they take into account the feedback from students and alumni as well as advice and needs from industry when redesigning the curriculum. Industry representatives confirm that they have made suggestions for the curricula and that UNHAS has approved their proposal. Students appreciate that their feedback is being collected and considered.

Student mobility

As stated in the SAR, UNHAS and both programmes under review recognise the benefits of mobility for students in broadening their academic perspectives, enhancing their knowledge and skills, promoting independence and building networks with professionals in their field. They promote (international) student mobility through an appropriate framework (programme structure, recognition of qualifications and support services). However, according to the data provided, the experts note that student mobility is mostly limited to Indonesian institutions.

There is also the IISMA programme, which enables students to develop valuable skills and broaden their horizons by studying abroad for a semester. BPS encourages its students to participate in this activity every year. However, in the last 2 years, the statistics students have always failed at the interview level.

The SWOT analysis in the SAR recognises that international student mobility is still lacking. The programme is urged to be active at the international level. They want to increase the cooperation between the programme and other institutions in Indonesia or foreign institutions regarding student exchange programmes. The representatives of the Rectorate explain during the audit that they are developing a new international strategy. On the one hand, they are planning agreements with universities in Canada and Australia. On the other hand, they are promoting the attractiveness of the island of Sulawesi in order to attract students from other countries.

The experts appreciate the efforts of UNHAS to improve its international strategy and increase student mobility. However, they consider it desirable that the degree programmes under review provide more support for students to succeed in the competition to go abroad for a semester (IISMA programme).

Overall, the reviewers consider that the curricula of both programmes cover the important issues in their respective areas. They see that the curriculum enables students to achieve the learning outcomes set for the programmes as a whole. The electives offered in both programmes provide opportunities for individual focus and study. In addition, they highlight that students and graduates appear to be very satisfied with their respective programmes and feel well prepared for their future careers. They also appreciate that the curriculum is reviewed regularly and that suggestions and input from stakeholders are used as important considerations in the curriculum review process.

However, with regard to the **BPP**, the experts note that while the planned curricular changes are going in the right direction there are still issues to be improved. The current curriculum structure force all the compulsory subjects to be finished within 2 years (4 semesters). The study programme needs to make sure that the core competence can be achieved by the student with proper sequence and time, for example, by reducing the number of compulsory courses in the third semester. In addition, industry feedback suggests that soft skills training should be strengthened in both programmes under review, for example by inviting alumni to run workshops on the subject. The experts also believe that programmes should provide more support for students to be successful in the IISMA programme.

Criterion 1.4 Admission Requirements

Evidence:

- Self-Assessment Report (SAR)
- Study Guide of BPP and BPS

- University Website, Admission for new Students: https://regpmb.unhas.ac.id/
- New Student Admission Regulation
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The University has described the different admission criteria in its SAR in accordance with UNHAS regulations. There are three ways of admitting new undergraduate students:

1. SNBP (National Selection Based on Merit) selection: for candidates directly from high school / vocational / MA students who have superior achievements to pursue higher education. They must have a National Student Identification Number (NISN), outstanding academic and non-academic achievements and a track record of academic achievement in the School and Student Database (PDSS). It is based on a national university entrance examination (PTN) organised by the Ministry of Education, Culture, Research and Technology (Kemendikbudristek).
2. SNBT selection. Seleksi Nasional Berdasarkan Test (National Selection Based on Test): only for Indonesian citizens with a Resident Identification Number (NIK) who have completed high school in the last three years. It is based on the results of a computer-based written examination (UTBK) to assess the potential abilities of new students.
3. The University Hasanuddin Selection which includes the following selection groups:

- JNS (selection for non-subsidised students) based on written examination.
- POSK is a selection based on the candidate's achievements in sports, arts, science and academics.
- Affirmative action for students from remote and underdeveloped regions of Indonesia in order to promote equal opportunities for the country's population.

The Admission Rules are published on the University's website and provide potential students with detailed information on the requirements and steps necessary to apply for admission to the programmes. As they are based on official regulations, the assessors consider them to be binding and transparent. They confirm that the admission requirements support students in achieving the intended learning outcomes. The experts also appreciate that UNHAS supports low-income students.

Criterion 1.5 Workload and Credits

Evidence:

- Self-Assessment Report (SAR)

- Study Guide of BPP and BPS
- Module Handbooks
- Decision Dean of the Faculty of Mathematics and Natural Sciences UNHAS: "Recognition of The Credit Unit System (Credits) and Equalization of Assessment of The Form of Independent Learning Activities Independent Learning-Campus (BKP MBKM) at the Faculty of Mathematics and Natural Sciences (MIPA) Hasanuddin University"
- Table of workload and percentage of assessment of course
- University Website: https://www.unhas.ac.id/
- Curriculum structure of BBP and BPS
- Statistical Data about the progress of Studies
- Survey Results
- Discussions during the audit

Preliminary assessment and analysis of the experts:
As described in the SAR, based on the National Decree of the Ministry of Education and Culture of Indonesia (No. 3 Year 2020 Article Number 19), 1 sks (1 CP) of classroom teaching is equivalent to 50 minutes of attending a lecture, 1 hour for an assignment and 1 hour for self-study, with a total of 170 minutes, while 1 sks (1 CP) of a practicum is equivalent to 170 minutes of practical sessions in the laboratory and 1 sks (1 CP) of a seminar is equivalent to 170 minutes of seminar session. Student's workload is calculated in semester credit units (sks – satuan kredit semester), a unit of time for learning activities charged to students each week in one semester.

UNHAS explained that 1 sks is equivalent to 1.7 ECTS. "The duration of the course is generally 16 weeks in one semester. This indicates that for 1 CP, the students spend 2720 minutes in one semester. In the ECTS credit system, as a comparison, one ECTS-CP is equivalent to between 20 to 30 working hours. Taking a middle value of 20 to 30 hours is 1650 minutes, so the ratio of sks-CP to ECTS is 1: 1.7."

As mentioned above, the duration of the programmes is four years (eight semesters) with a minimum of 7 semesters and a maximum of 14 semesters. Students are required to complete a minimum of 144 sks and a maximum of 150 sks, i.e. a minimum of 244.8 ECTS and a maximum of 255 ECTS throughout their studies. The distribution of the CPs in both programmes under review is as follows:

Area of subjects	Number of CP for BPP	Number of CP for BPS
National Mandatory Courses	10 CP/17 ECTS	10 CP/17 ECTS
University Mandatory Courses	27 CP/40.5 ECTS	27 CP/45,9 ECTS
Compulsory Courses	52 CP/88.4 ECTS	67 CP/112,2 ECTS
Elective Courses	77 CP/130.9 ECTS	93 CP/158,1 ECTS
Final Report	8 CP/13.6 ECTS	7 CP/11,9 ECTS

The SAR emphasises that several factors have been taken into account in determining the workload in both BPP and BPS, e.g. the complexity and level of the subject, the type and quantity of assignments, projects and examinations.

For the **BPP**, the statistics relating to the time taken to graduate are as follows:

No	Information	Graduation Period In 2021							
		March	June		September		November		Total
			1	2	1	2	1	2	
1	Number of graduates	7	2	4	6	2	7	10	38
2	Average GPA	3.52	3.6	3.41	3.35	2.90	3.53	3.43	
3	Length of Study	4.4	3.7	3.8	4.5	5.6	4.7	4.2	
4	Min GPA	3.23	3.34	3.07	3.14	2.74	3.37	3.13	
5	Max GPA	3.91	3.87	3.67	3.46	3.07	3.86	3.57	
6	GPA < 2,75	0	0	0	0	1	0	0	1
7	GPA 2,75 – 3,50	3	1	2	6	1	3	6	22
8	GPA > 3,50	4	1	2	0	0	4	4	15

No	Information	Graduation Period In 2022								
		Feb	March	May	July	September		November	December	Total
						1	1			
1	Number of graduates	5	6	4	1	2	5	4	9	36
2	Average GPA	3.5	4.21	3.52	3.35	3.55	3.45	3.55	3.61	
3	Length of Study	4.8	4.4	4.5	4.1	3.6	4.4	4.2	4.0	
4	Min GPA	3.23	3.43	3.27	3.55	3.27	2.98	3.47	3.21	
5	Max GPA	3.7	3.58	3.73	3.55	3.84	3.77	3.71	3.90	
6	GPA < 2,75	0	0	0	0	0	0	0	0	0
7	GPA 2,75 – 3,50	2	3	2	0	1	2	2	1	13
8	GPA > 3,50	3	3	2	1	1	3	2	8	23

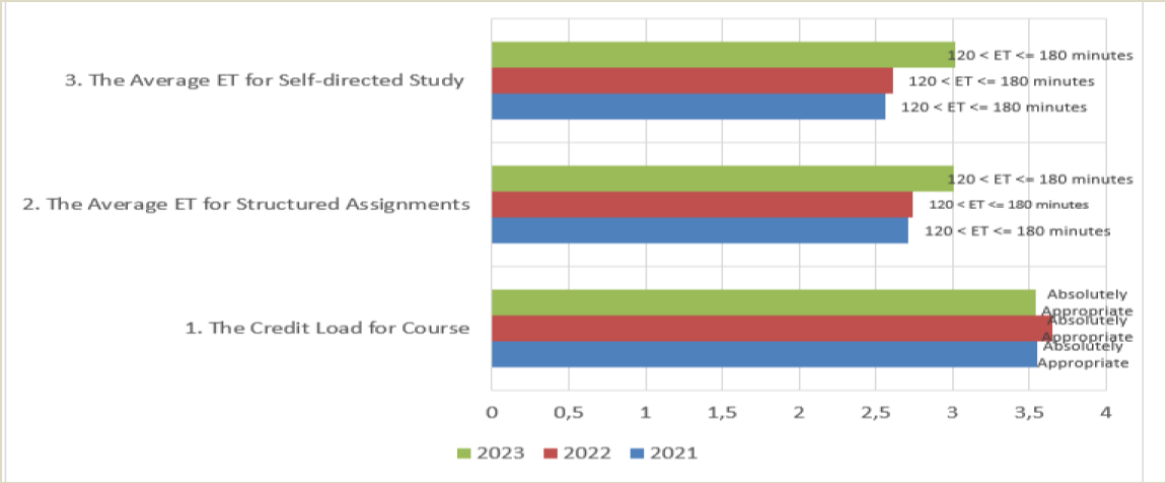
The following statistics on the length of study in the **BPS** are provided by the UNHAs for the years 2021 and 2022:

No	Information	Graduation Period In 2021							
		March	June		September		November		Total
			1	2	1	2	1	2	
1	Number of graduates	15	5	7	4	7	4	3	45
2	Average GPA	3,48	3,57	3,25	3,31	3,44	3,37	3,41	
3	Length of Study	4,5	4,2	4,9	5.0	4,3	4,4	4,5	
4	Min GPA	3,28	3,45	3,01	3,05	2,72	3,09	3,22	
5	Max GPA	3,86	3,73	3,49	3,48	3,73	3,61	3,77	
6	GPA < 2,75	0	0	0	0	1	0	0	1
7	GPA 2,75 – 3,50	10	2	7	4	2	2	2	29
8	GPA > 3,50	5	3	0	0	4	2	1	15

No	Information	Graduation Period In 2022						
		February	March	May	September	November	December	Total
1	Number of graduates	5	1	3	9	15	22	55
2	Average GPA	3,42	3,17	3,31	3,62	3,49	3,47	
3	Length of Study	4,8	4,6	5,4	4,23	4,3	4,6	
4	Min GPA	2,9	3,17	3,04	3,45	2,74	2,96	
5	Max GPA	3,69	3,17	3,54	3,78	3,89	3,84	
6	GPA < 2,75	0	0	0	0	1	0	1
7	GPA 2,75 – 3,50	3	1	2	2	4	10	22
8	GPA > 3,50	2	0	1	7	10	12	32

The experts ask about the average duration of studies in BPP and BPS. The programme coordinators reply that the majority (80%) complete their studies in the 8th semester and a large proportion take about 4 ½ years to complete their studies. They give a maximum duration of 14 semesters, but such cases are very rare. Students are satisfied with the workload of both programmes and feel very well supported despite the difficulty of the subject.

Part of the learning evaluation survey is an assessment of student workload. This assessment aims to understand the extent to which students feel challenged by the workload imposed on them in their learning process. This evaluation can provide input to the BPS on the effectiveness of the curriculum, teaching methods and academic programme management. The survey is conducted by distributing an online questionnaire to students. The questions in the survey include an assessment of the alignment of the credit hour workload of courses with the competencies achieved, the average adequate time students spend on structured assignments and self-study, and the distribution of time spent on each course. The survey on credit load and effective time for three years in the BPS is as follows:



A student time allocation survey is also carried out for each course. The purpose of this survey is to understand how students manage their time and the extent to which they engage in different learning activities.

The experts are satisfied with the fact that the amount and composition of the workload are described in detail for every module in the module handbook and that the workload is regularly monitored.

Criterion 1.6 Didactic and Teaching Methodology

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- Study Guide of BPP and BPS
- ILO'S Mapping to Teaching and Assessment
- University Website: https://www.unhas.ac.id/
- Curriculum structure of BBP and BPS
- Curricula Overview
- Student Community Service
- Discussions during the audit

Preliminary assessment and analysis of the experts:

According to the SAR, student-centred learning has been introduced in both programmes. Different teaching and learning methods are used, in particular group work, case studies,

discovery, cooperative and collaborative learning, and problem-based and project-based learning.

In the **BPP**, laboratory sessions range from specific and targeted training in the use of equipment and basic procedures of laboratory protocol, such as basic health and safety and hazard awareness, to open-ended experiments lasting several hours with assistance. In most cases, students will have a laboratory partner to work with. Students will also work with lab technicians, with whom students will need to talk about many things related to lab work. Students will learn to keep a laboratory logbook and write a scientific report and are expected to write formal laboratory reports.

The **BPS** introduces independent scientific work requiring the preparation of a scientific report as one of the assessments and also encourages students to attend proposal seminars or seminars on the results of students writing their final papers. Students are involved in joint research and publication with lecturers.

In the discussions during the on-site visit, the assessors discuss with the teaching staff the challenges of using artificial intelligence tools in the courses. The teachers try to show students how to use these tools appropriately for their learning process. On the other hand, plagiarism is checked. Additionally, regarding the compulsory laboratory courses, the teachers explain that students spend about three hours in the laboratory. Each student has an assistant in the laboratory work who is responsible for his or her evaluation.

The experts appreciate the diversity of teaching methods and believe that it ensures that the course objectives and the overall intended learning outcomes are achieved. Students are also introduced to independent and scientific work.

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

UNHAS states in its response that the learning outcomes for the BPP and BPS programmes are now available on the university's website so that all stakeholders can access information about the programmes. They provide links to the new website. The experts confirm that the learning outcomes of the two programmes are available on the respective websites of the institutes on the UNHAS website. Therefore, they consider that this requirement on criterion 1.1 is fulfilled.

Regarding the curriculum structure of the BPP, the programme has redesigned its curriculum to ensure that the core physics competence can be achieved by the students by reducing the compulsory courses and increasing the number of elective courses. UNHAS provides

an overview of the new curriculum 2023 and the updated module handbook. It explains that in the third semester two courses are elective, i.e. advanced mechanics and measurement statistics.

The experts review the new curriculum structure and appreciate the efforts of the study programme. They take note that there are two elective modules in the third semester, namely Advanced Mechanics and Measurement Statistics. However, the auditors point out that teaching in the same semester modules as Quantum Physics, Electromagnetic Field Theory, Atom and Molecule Physics, and Advanced Mechanics, which are related on the physical or on the mathematical level, makes it difficult to leverage synergies between the modules and does not allow the students to properly digest the material. In addition, Mathematical Physics 3 in the fifth semester contains a significant amount of linear algebra which would be useful in the Quantum Physics module in the third semester. For this reason, they are of the opinion that a further increase of elective modules in the third semester would not solve this problem. Therefore, they suggest that the third semester compulsory subjects with related content (the four modules mentioned before) need to be appropriately spread over the semesters (at least until the third year, semester 5 or 6) in order to ensure that the core skills can be acquired by the students in the correct sequence and timeframe. Therefore, the experts do not consider this requirement to be met.

Regarding the recommendation to strengthen soft skills training for students, UNHAS points out that both programmes under review have conducted several soft skills training activities. At BPP, for example, alumni are regularly invited to run short workshops for new students during the annual alumni reunion in mid-August and to speak at the admissions event for new students. They also emphasise that lecturers help to improve students' soft skills by encouraging them to present their work to the class. They provide pictures as evidence of the organized activities. The experts appreciate that these activities take place and encourage programmes to strengthen soft skills training.

Concerning the IISMA (semester abroad competition), the BPS notes that it provided support to a BPS student who successfully passed the IISMA by converting courses programmed at the University of Malaya (partner university) into compulsory courses or by including the courses as electives in the current semester. However, the experts consider that the programmes under review should provide more support to enable more students to benefit from this offer and, in general, strengthen the efforts in international exchange of students.

2. Exams: System, Concept and Organisation

Criterion 2 Exams: System, Concept and Organisation

Evidence:

- Self-Assessment Report (SAR)
- Exam Regulation of the Faculty of Mathematics and Natural Sciences
- Module Handbooks
- Portfolio of BPP and BPS
- Study Guide of BPP and BPS
- University Website: https://www.unhas.ac.id/
- Samples of student's work (exams, final projects and thesis)
- Student Community Service
- Internship-Field Study
- Discussions during the audit

Preliminary assessment and analysis of the experts:
Examinations in the programmes under review are conducted in accordance with the examination rules set out in the Faculty's examination regulations. According to them, the preparation of examination questions is checked by all teaching teams before the examination is held, so that the nature and level of difficulty of the questions is uniform and covers the learning outcomes of the course.

Exams are held in the middle and at the end of each semester, both in odd-numbered and even-numbered semesters (midterm and final semester exams). The midterm questions generally cover the material from weeks one to seven, while the final semester questions cover the material from weeks nine to fifteen. For parallel classes, the questions are made uniform after being reviewed by all teaching teams. The percentage of marks from written examinations is usually around 20-25% of the total mark.

In the BPP and BPS, examinations are scheduled and various forms of assessment are used, namely written examinations, practical examinations, independent and group work, presentations and the preparation of reports and theses. In the case of practical courses in particular, assessment takes the form of a practical examination at the end of the semester. In the case of internships, the final assessment is made by supervisors and lecturers based on the student's performance, presentations and recommendations on the results of the

analysis. For the Community Service Programme (KKN), assessment is carried out by supervisors through work programme seminars, work programme evaluation seminars, final seminars and student journal reports.

In the module handbooks and course portfolios provided by UNHAS for both programmes under review, forms of assessment, study and examination requirements and forms of examination are specified for each module. A detailed overview of the form of assessment for each course are contained in the course portfolios.

Students are required to complete a final project in order to obtain a Bachelor's degree. The final project is divided into proposal seminars, results seminars and final projects, totalling 8 CP (13.9 ECTS) for the BPP and 7 CP (11.9 ECTS) for the BPS. Students are accompanied by two supervisors who may come from internal or external study programmes. Student seminars are assessed and verified by a team of examiners. The thesis is an independent piece of work by the student as a result of research, system implementation and analysis.

At the beginning of the academic year, the University publishes an academic calendar that includes lecture schedules, mid-term and final exam schedules, real work lectures and other activities. During the start of the lecture period, the teaching team will provide information on the content, type and timing of the examinations, including transparency rules for repeat examinations, absences, sickness and compensation for students with disabilities or special needs, as set out in the University Regulations.

The value of the learning outcomes is expressed in letters by converting the numerical form. The grading system at UNHAs is as follows:

Range of the score	Grades	Score Conversion Grade
85 – 100	A	4.00
80 - < 85	A-	3.75
75 - < 80	B+	3.50
70 - <75	B	3.00
65 - <70	B-	2.75
60 - <65	C+	2.50
50 - <60	C	2.00
40 - <50	D	1.00
<40	E	0.00

Students who receive a grade D or E in a course and who have participated fully in all learning activities or who have been absent for an acceptable reason may take a resit examination. If the resit grade is D or E, the student must repeat the course a maximum of three times. Supplementary examinations must be taken no later than three weeks after the scheduled examination for the subject. There is no resit examination for a student who has taken a resit course. There will be no resit examination for any reason, and the result will be final. In addition, students may appeal against their examination results to the course lecturer, who reviews the reasons for appealing.

Students who are unable to sit the examination at the scheduled time may apply to the Head of Programme for a make-up examination, providing evidence of the reasons for their absence (e.g. illness, duties for the benefit of the Action and state or force majeure). Special arrangements can be made for students with disabilities, such as an extension of the time allowed for taking the examination or the provision of alternative methods of assessment.

During the audit, students report that they are satisfied with the examination forms and their organisation, and with the support and feedback provided by lecturers.

The auditors examine samples of examinations and final projects submitted by the programmes under review. According to them, the documents show that the level of the students' academic performance and the content of the modules are sufficient for the programme concerned. They also consider that the number and distribution of examinations ensure an appropriate workload and sufficient time for preparation.

3. Resources

Criterion 3.1 Staff and Development

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- University Website: https://www.unhas.ac.id/
- Staff Handbook
- Discussions during the audit

Preliminary assessment and analysis of the experts:

According to the SAR, the ratio of lecturers to students is 1:20, as prescribed by the Ministry of Education No. 234/U/2000 for scientific fields. There are 16 lecturers at the BPP and 15 at the BPS. A high proportion of BPP lecturers have a PhD. This is shown in the table below:

Academic Qualification	Programme	
	BPP	BPS
Ph.D Degree	11	8
Master's Degree	5	7

For the BPP, 14 lecturers hold permanent positions and are certified professional educators. In addition, 10 hold the rank of professor, one is a senior lecturer and five are junior lecturers with a master's degree. The following figure illustrates the distribution of positions of BPP lecturers:

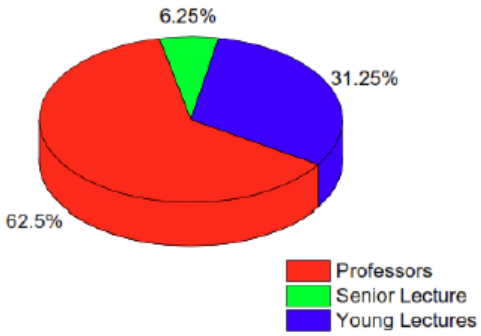


Figure A 3. Distribution of position of BPP' Lectures

In addition, BPP has two laboratory assistants and two administrators with appropriate qualifications.

In the BPS, one lecturer is continuing his studies in the doctoral programme. Of the 15 members of the teaching staff (lecturers), two lecturers hold the position of professor, seven lecturers hold the position of associate professor and six lecturers hold the position of assistant professor.

For both programmes, in the last three years the number of scientific publications has increased in terms of publication quality. The number of articles published by BPP staff on an international level is higher, both those published in regular journals (29%) and those published in international proceedings (25%). The contribution of the number of articles published in prestigious journals and international proceedings has reached 169 titles with a total of 1929 citations.

UNHAS highlights its offers to improve the professional skills of its staff, e.g., training of lecturers' pedagogical skills, refreshing of pedagogical skills. During the discussions on-site, the lecturers explain that UNHAS has an agency (QAEDA) responsible for didactic training. All lecturers have to attend these didactic trainings and receive a certificate issued by QAEDA. Teachers appreciate the university's offer of didactic training for new teachers. In addition, they find very useful a workshop held last year in collaboration with the University of Arizona to refresh their pedagogical skills. Lecturers are satisfied with the support and opportunities provided by the University to develop their professional and didactic skills. The university and the faculty support them in developing their skills and careers, e.g. for doctoral studies and research activities.

Regarding teaching workload, the lecturers explain to the auditors that they have five to six courses per semester (9 sks). The lecturers in the BPP explain that there are three study programmes in the field of physics and that they also teach for Masters students. In some cases they have support from PhD students, e.g. for the Basic Physics exam. However, considering the increasing number of students (currently, 80) and the upcoming retirements of professors, the lecturers of BPP note that it is necessary to increase the number of qualified teaching staff. Although the Faculty supports its staff to pursue doctoral studies in other countries or to participate in national and international congresses, the lecturers note that they have difficulties in taking advantage of these opportunities due to the teaching workload. They would appreciate more time for research and for further qualification. On the other hand, BPS lecturers are satisfied with their workload. However, they are of the opinion that there is a need for more staff in particular professors and experts in data analysis if the faculty is to open a new programme.

In conclusion, the experts confirm that the composition and academic orientation of the teaching staff are appropriate for the successful implementation and sustainability of both programmes under review. The University and the Faculty support their staff and provide adequate opportunities for the development of professional and teaching skills. However, due to impending retirements in the BPP and the development of new study programmes, the experts are of the opinion that the University needs to plan for the development of its human resources. For BPS in particular, the new staff should be more highly qualified. In addition, they consider that it would be desirable to give young lecturers in both programmes under review more time for research and qualification, for example by reducing the teaching load during the qualification period.

Criterion 3.2 Student Support and Student Services

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- University Website: https://www.unhas.ac.id/
- Staff Handbook
- Discussions during the audit

Preliminary assessment and analysis of the experts:
According to the SAR, UNHAS aims to provide students with comprehensive support, guidance and resources to ensure their academic success, personal development and well-being. For example, it provides counselling services to support students' emotional and psychological needs and encourages student involvement in co-curricular activities through a large number of student organisations, clubs and societies covering various interests, including academic, cultural, sporting and social activities.

There are also programmes for new students to facilitate their integration into university life, providing information about campus facilities, academic policies, support services and culture. The University also offers mentoring programmes to help new students adjust to university life and make contact with their peers and lecturers. There is also a health centre, a careers service and a language centre. A learning management system called SIKOLA is used at UNHAS to facilitate communication between students and lecturers.

Each student has an academic advisor appointed by the Dean on the proposal of the Head of Department. The academic advisor guides the student in the selection of courses (com-

pulsory and elective, depending on the student's interest) according to the student's academic achievement or performance during the semester, and evaluates the student's academic development.

In summary, students generally have a very good relationship with their teachers and alumni still maintain contact with the institution and staff and are very proud of the institution. Both students and staff confirm that there is always an academic advisor available to work with students on any questions or problems. The experts noted the good and trusting relationship between students and staff. They believe that the support system helps students to achieve the intended learning outcomes and to complete their studies successfully and without delay. Students are well informed about the services available to them. The experts consider that the guidance and mentoring system in place is very good.

Criterion 3.3 Funds and equipment

Evidence:

- Self-Assessment Report (SAR)
- Module Handbooks
- University Website: https://www.unhas.ac.id/
- List of Laboratory Equipment
- Staff Handbook
- Discussions during the audit

Preliminary assessment and analysis of the experts:
According to the SAR, funding at UNHAS comes from state income budget expenditure and non-state income budget expenditure. In addition, at the university level, funding comes from collaborations with industrial partners.

At the departmental level, the required funding budget is proposed to the department by each laboratory head and study programme, and these proposals are submitted to the Faculty. Finally, the Dean of the Faculty approves the annual budget for the programme and submits it to the University. During the audit, the programme coordinators noted that public funding had been reduced. Considering that only 25% comes from students' tuition fees, they have set up companies and collaborate with other universities and industry in order to reduce dependence on students' tuition fees.

The BPP consists of five main laboratories, namely the Fundamental Physics Laboratory, the Theoretical Physics and Computational Laboratory, the Energy and Materials Science

Laboratory, the Electronics and Instrumentation Laboratory, and the Optics and Spectroscopy Laboratory. Several laboratories, equipment and other facilities are provided to support the learning process and the final project.

In the BPS, there are two laboratories and the Statistics Consulting Centre (SCC)/Statistical Corner. The Statistical Corner is a training facility to process macro and micro data in a more user-friendly way for the public and to support data integration in South Sulawesi Province. Other facilities managed by the BPS include office space consisting of meeting rooms, administration rooms and departmental management rooms. There is also a discussion room and an assistant room used by students for tutorials and projects.

During the on-site visit, the experts inspect the university's facilities, faculties and laboratories with the exception of the basic physics laboratory which was under renovation. Overall, the experts conclude that the university has secure funding and reliable financial planning. The UNHAS campus and infrastructure are adequate and sufficient. They consider that there is enough space, rooms and facilities for the BPS and that the laboratories are well equipped. They consider the infrastructure in the statistics programme to be very good.

However, the experts recommend BPP to continuously modernize lab equipment. . In this context, the auditors also ask for a list of experiments. In addition, it is desirable to improve the computer facilities in Theoretical Physics and Computational Laboratory. Furthermore, the experts ask the department for a list of experiments available in the basic physics lab (see section **D**), as they were not able to see this lab for students because it was under renovation. Moreover, the interviewed students complain about the unstable internet connection in the campus.

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

In terms of human resources development, UNHAS points out that the BPS has opened up additional teaching positions in the CPNS recruitment process, with a quota of two lecturers for the Bachelor's degree and two young lecturers with a Master's degree. In addition, BPS will continue to encourage young lecturers to continue their education up to doctoral level. The BPS notes that the Faculty of Mathematics and Natural Sciences is actively recruiting new teaching staff through the Department of Higher Education. For example, two new lecturers were hired in 2024. They provide details of those recruited. In addition, the BPS is committed to continuing to encourage young teachers to further their education up to doctoral level. The experts appreciate the recruitment efforts of both programmes and

consider that they should continue to plan for the development of their human resources. In addition to recruiting young people with Master's degrees, there is also a need for more qualified staff, especially in statistics. Furthermore, they should give young lecturers more scope for research and qualification (e.g. by reducing the teaching load).

With regard to laboratory equipment, UNHAS indicates that the BPP has recently acquired three modern physics instruments and has secured funding from the Ministry of Education and Culture (Higher Education) through the Faculty of Mathematics and Natural Sciences. A list of new equipment in the Electronics and Instrumentation Laboratory is provided as evidence. However, they recommend that the BPP continue to modernise the laboratory equipment and suggest the need to add some modern physics experiment especially in the optics (scattering, diffraction, superposition) and some modern physics equipment.

Additionally, it is explained that new computer equipment for the Theoretical and Computational Physics Laboratory is currently in the procurement process. UNHAS provides proof for that. The experts appreciate the department's efforts and see it as proof of their willingness to improve the laboratory equipment.

UNHAS also provides a list of experiments available in the basic physics laboratory. The experts are of the opinion that, in principle, these experiments could provide the basics of experimentation. However, as there seems to be only one experiment, e.g. on point mechanics (oscillation motion), the auditors recommend to broaden the range of experiments offered in the basic physics lab.

Regarding the internet connection, UNHAS remarks that there are no restrictions for internet access across all faculties, except for the Gowa Engineering Campus, which is limited to 1 Gbps. Users are required to log in to the integrated internet system (using an Apps account), and their access speed will be limited based on their role. Students are granted access up to 10 Mbps, while lecturers are given access up to 20 Mbps. The experts appreciate this explanation and are of the opinion that the bandwidth is sufficient and the access of the students to the relevant information is provided.

4. Transparency and Documentation

Criterion 4.1 Module Descriptions

Evidence:

- Self-Assessment Report (SAR)

- Module Handbooks
- BPP's Website: https://phys-front.vercel.app/module-handbook
- BPS' Website: https://stat.sci.unhas.ac.id/en/module-handbook-2018/
- Staff Handbook
- Discussions during the audit

Preliminary assessment and analysis of the experts:
The module handbook for both degree programmes under review is published on the university's website and is thus accessible to the students as well as to all stakeholders. The experts observe that they contain the necessary information about the persons responsible for each module, the teaching methods, the credit points awarded, the intended learning outcomes, the applicability, the forms of assessment, the admission and examination requirements, the workload (incl. contact hours and self-study time), the literature as well as the details explaining how the final grade is calculated.

The experts are of the opinion that the module descriptions are accessible and contain the required information for each module.

Criterion 4.2 Diploma and Diploma Supplement

Evidence:

- Self-Assessment Report (SAR)
- Sample diploma supplement for each degree programme
- Sample diploma and transcript of records for each degree programme

Preliminary assessment and analysis of the experts:
According to the SAR, each student receives three documents upon graduation: a diploma (bachelor's degree), a diploma supplement and a transcript of records. Diploma and diploma supplements are available in Indonesian and English.

The Diploma Supplement is an official document issued by the Dean. It provides information on the student's qualification profile and individual performance, as well as the classification of the programme in relation to the respective education system.

On the basis of samples of these documents, the experts confirm that students on the programmes assessed receive a Diploma Supplement in English and a Transcript of Records, and that these documents contain all the necessary information. The Diploma Supplement also explains how the final grade is calculated and the GPA distribution of graduates. The Transcript of Records contains the marks for each module. Nevertheless, the BPP needs to

ensure that the ILO stated in the Diploma Supplement and in the Study Program Guide must be consistent with each other.

Criterion 4.3 Relevant Rules

Evidence:

- Self-Assessment Report (SAR)
- Regulations available on https://dikmawa.unhas.ac.id/regulasi-akademik-2/

Preliminary assessment and analysis of the experts:
All rules and regulations are published on the university's website and are therefore available to all stakeholders. A page with links to the rules, regulations and statutes is available, providing easy access to important information on academic regulations (e.g. student admission, undergraduate program implementation, implementation of magister program, implementation of doctorate program, student code of ethic). These rules and regulations can be accessed via the following link: https://dikmawa.unhas.ac.id/regulasi-akademik-2/.

The experts confirm that the rights and obligations of both UNHAS and the students are clearly defined and binding. The students interviewed seem to be satisfied with the website and the academic intranet. They say that they can find all the information they need.

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

In its statement, UNHAS indicates that, after a review, the ILO as stated in the Diploma Supplement and in the Guide to the Study Programme are in line with each other. They provide an updated example of the Diploma Supplement. The experts consider that the ILOs are consistent in both documents and that this recommendation has been met.

5. Quality management: quality assessment and development

Criterion 5 Quality management: quality assessment and development

Evidence:

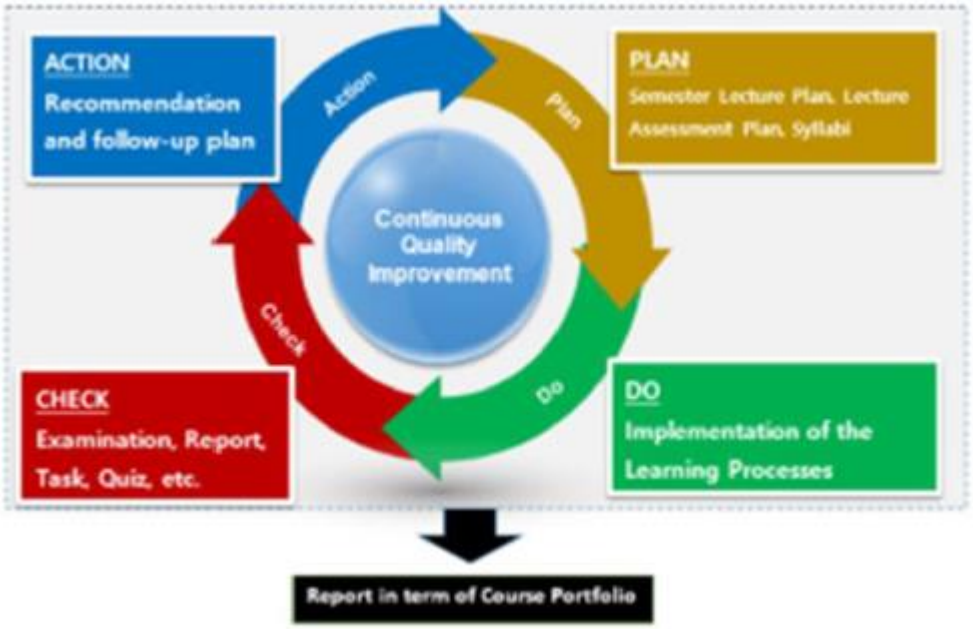
- Self-Assessment Report (SAR)
- Study Guide of BPP and BPS

- University Website: https://www.unhas.ac.id/
- Survey results
- CLO Measurements
- Statistical Data
- Samples of Course Portfolio
- Discussions during the audit

Preliminary assessment and analysis of the experts:
UNHAS has various survey procedures and quality assurance processes. The experts learn that there are two levels of quality assurance. The first level is external quality assurance, which consists of an external review of UNHAS study programmes by various accreditation bodies, such as the BAN-PT (Indonesia National Accreditation for Higher Education) and, for BPS only, AUN-QA (ASEAN University Network-Quality Assurance). However, from 2021, BAN-PT will no longer provide accreditation for BPP and BPS and will be replaced by the Independent Accreditation Institute for Natural Science and Formal Science (LAMSAMA).

The second level consists of an internal quality assurance system carried out by different actors. The first actor at university level is the Institute for Quality Assurance and Educational Development (IQAED). At the faculty level, the assessment is carried out by the Internal Quality Assurance Unit (IQAU). They organize the Internal Quality Audit (AMI) every year and the ISO 9001 audit twice a year with regard to the assessment of Programme Learning Outcomes (PLOs), Course Learning Outcomes (CLOs), Intended Learning Outcomes (ILOs), resources and facilities.

The student's regular survey is conducted at the end of each semester or academic year. The survey results serve as an evaluation tool for the ongoing learning process. The feedback loop, aligned with the survey results, is demonstrated through the PDCA (Plan-Do-Check-Action) process as shown in the following figure:



BPP conducted a tracer study for alumni from 2017-2020 who are working in various fields to reflect on their educational experiences in physics, their competencies and skills, and their impact on their professional career paths. In addition, it is conducting a tracer study to collect feedback from alumni and users on the Programme Learning Outcomes (PLOs). This study involves the systematic collection and analysis of data to provide evidence on the curriculum, learning processes and student performance, all aimed at assessing the achievement of PLO objectives. A student time allocation survey is also carried out for each course. The purpose of this survey is to understand how students manage their time and the extent to which they engage in different learning activities.

Both programmes also conduct tracer studies for alumni and employers through an online questionnaire system developed by the University. The alumni survey provides information on the employment distribution of graduates as well as the average waiting time for a job placement after graduation.

Two important tools highlighted by UNHAS are the indirect and direct assessment of CLOs. A regular assessment of the achievement of CLOs has been established and is documented in the form of a written report, the Course Portfolio. On the other hand, the BPP and BPS carry out the Teaching and Learning Survey and the Exit Survey, which are completed by new graduates after their thesis defence.

The teaching and learning survey is conducted through a questionnaire divided into five criteria, including assessment of the learning process, assessment of lecture time, assessment of study resources, assessment of infrastructure and support structure, and assessment of student study time. Part of the learning evaluation survey is an assessment of student workload. This assessment aims to understand the extent to which students feel challenged by the workload they are given in their learning process. The exit survey is designed to get feedback from students about the performance of the lecturer, the learning process and the learning materials. Part of the learning evaluation survey is an assessment of student workload.

At the end of each semester, students evaluate the learning process in each course. During the audit, students confirm that every semester they complete the online questionnaires about the course and the teaching. They explain that it is a multiple-choice form (agree or disagree) and there is also space for comments. They appreciate that their feedback is collected and they believe that the results are considered and applied by the programmes. For example, in one course, they wanted more practice in solving problems and the teaching methodology was adapted accordingly. However, the evaluation results are not discussed with the students.

In summary, the expert group confirms that the overall quality management system is effective in identifying weaknesses and improving the programmes. All stakeholders are involved in the process, but the closure of the feedback loop with students needs to be ensured. The teaching evaluation needs to be organised in such a way that a feedback of the results to the students is ensured and the student get the result of their feedback

D Additional Documents

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

D 1. New module structure of BPP
D 2. Updated Module handbook
D 3. List of experiments available in the basic physics lab

E Comment of the Higher Education Institution (14.05.2024)

The institution provided a detailed statement as well as the following additional documents:

- New module structure of BPP
- Updated Module handbook
- List of experiments available in the basic physics lab

The following quotes the comment of the institution:

„BPS

Expert comments in Preliminary assesment on Criterion 1.1 (Objectives and Learning Outcomes of a Degree Programme).

However, the experts note that the learning outcomes of the two programmes are not available on the respective websites of the institutes on the UNHAS website. They should be anchored and published in a transparent manner so that they are available to students, lecturers and interested third parties. Therefore, the experts consider that the **learning outcomes need to be made available to all stakeholders on the university's website**.

Response from all programmes

The suggestions from the experts have been conveyed to the Faculty Leadership to be forwarded to the University Leadership for the addition of learning outcomes to the Hasanuddin University website. It is hoped that the website from Hasanuddin University will be directly connected to the website from the study program.

https://www.unhas.ac.id/study-program/statistics/

Expert comments in Preliminary assesment on Criterion 1.3 (Curriculum content and structure).

However, **soft skills, especially communication abilities, are, in their opinion, missing and should be improved**. Based on this feedback, the experts consider that soft skills could be

emphasized more in the two degree programmes, for instance, by inviting alumni to provide workshops about this topic.

Response from BPS

BPS will pay close attention to the input to continue improving training and workshops as an effort to enhance the skills of students, especially in communication skills. BPS has conducted several activities for communication training and invited some alumni and experts, but of course, we still need to improve the form of these activities. Thes acticities are:

1. Training for Public Speaking and Making Portfolios for Final Year Students, on May 21, 2022, with 2 resource persons. Evidence of activity is shown in Figures B.1 and B.2.
2. Understanding Market Research on December 8 2023, with 1 resource person. Evidence of activity is shown in Figure B.3.

Expert comments in Preliminary assesment on Criterion 1.3 (Student mobility).

However, according to the data provided, the experts note that student mobility is mostly limited to Indonesian institutions. There is also the **IISMA programme**, which enables students to develop valuable skills and broaden their horizons by studying abroad for a semester. **BPS** encourages its students to participate in this activity every year. **However, in the last 2 years, the statistics students have always failed at the interview level**.

Response from BPS

We would like to convey information to experts that in March 2024, there was an IISMA announcement and stated that one of the students from BPS had successfully passed IISMA out of the 3 students BPS who registered. The student's name is Nabila Miftakhurriza (Number 12) is one of 17 IISMA awardees from Hasanuddin University and will go to University Malaya in October 2024. Proof graduation is shown in Table B.1. BPS provides support to Nabila Miftakhurriza (IISMA awardee) by converting courses programmed at Malaya University (partner university) to mandatory study program courses or including the courses as elective courses in the current semester.

Expert comments in Preliminary assesment on Criterion 1.3 (Student mobility).

The experts appreciate the efforts of UNHAS to improve its international strategy and increase student mobility. However, they consider it desirable that **the degree programmes**

under review provide more support for students to succeed in the competition to go abroad for a semester (IISMA programme).

Response from BPS

Support from BPS to students to succeed in competitions and travel abroad will continue to be enhanced. One of the planned initiatives is language improvement training for students who have good academic and language skills to prepare for international activities. In preparation for this plan, BPS has held discussions with one language institution, namely Macca Education, to provide foreign language instruction, specifically English. One of the discussions was carried out via chat on WhatsApp as shown in Figure B.4. The implementation is planned for the Early Semester 2024/2025

Expert comments in Preliminary assesment on Criterion 3.1 (Staff and development).

However, due to impending retirements in the **BPP** and the development of new study programmes, the experts are of the opinion that the University needs to plan for the development of its human resources. For **BPS** in particular, the new staff should be more highly qualified. In addition, they consider that it would be desirable to give young lecturers in both pro-grammes under review more time for research and qualification, for example by reducing the teaching load during the qualification period.

Response from BPS

At BPS, additional teaching staff positions have been opened in the Civil Servant Candidate (CPNS) Recruitment with a quota of 2 lecturers for Bachelor's Degree. The announcement has been released and has accepted 2 young lecturers with master's education, namely Andi Isna Yunita Muthia Nur Angriany. Proof of graduation is shown in Figure B.5. Furthermore, BPS will continue to encourage young lecturers to further their education to the Doctoral level.

BPP

Expert comments in Preliminary assessment on Criterion 1.1 (Objectives and Learing Outcomes of a Degree Programme).

However, the experts note that the learning outcomes of the two programmes are not available on the respective websites of the institutes on the UNHAS website. They should be anchored and published in a transparent manner so that they are available to students, lecturers and interested third parties. Therefore, the experts consider that the learning outcomes need to be made available to all stakeholders on the university's website.

Response of expert comments in preliminary assessment on Criterion 1.1(Objectives and Learing Outcomes of a Degree Programme).

The learning outcomes for the BPP programs are available now on the University's website, allowing all stakeholders to access information about the study programs. We have also attached the new addresses for BPP's website.

https://www.unhas.ac.id/study-program/physics/

Expert comments in Preliminary assessment on Criterion 1.3 (Curriculum)

The experts are of the opinion that the planned changes in the new curriculum of the BPP are going in the right direction, but that a realistic arrangement of the curriculum structure is desirable. Despite the constraints imposed by government decisions, the experts believe that the curriculum structure should be redesigned to make sure that the core competence can be achieved by the students with proper sequence and time. In particular, the number of compulsory courses in the third semester should be reduced making use of margins set by governmental regulations.

The industry representatives are satisfied with the students and graduates skills of both programmes under review. They showed strong analytical skills and are hard-working and fast learners. However, soft skills, especially communication abilities, are, in their opinion, missing and should be improved. Based on this feedback, the experts consider that soft skills could be emphasized more in the two degree programmes, for instance, by inviting alumni to provide workshops about this topic.

Response of expert comments in preliminary assessment on Criterion 1.3 (Curriculum)

BPP has resigned its curriculum to ensure that the competence of the core physics can be achieved by the students with reducing the compulsory courses and increasing to the elective courses. This can looked in the new curriculum 2023. **(Please refer to BPP's curriculum 2023 in the attachment file)**. In semester III, we design 2 subjects are elective courses i.e advanced mechanics and measurements statistics.

To enhance soft skills of students, we regularly invite alumni to conduct short workshops for new students during the annual alumni gathering in mid-August. Additionally, alumni are invited to speak at the new student admissions event. Furthermore, lecturers help improve students' soft skills by encouraging them to present their work in front of the class. Figure A1 shows the workshop conducted by alumni for the students.

Expert comments in Preliminary assessment on Criterion Criterion 1.3 (Curriculum-student mobility)

As stated in the SAR, UNHAS and both programmes under review recognize the benefits of mobility for students in broadening their academic perspectives, enhancing their knowledge and skills, promoting independence and building networks with professionals in their field. They promote (international) student mobility through an appropriate framework (programme structure, recognition of qualifications and support services). However, according to the data provided, the experts note that student mobility is mostly limited to Indonesian institutions.

Response of expert comments in preliminary assessment on Criterion 1.3 (Curriclum-student mobility)

It is undeniable that all students from BPP participate in student mobility programs within Indonesian institutions. However, since October 2023, our department has collaborated with Malaysian and Japan institutions such as the Faculty of Applied Sciences at Universty Teknologi Mara Malaysia and Hokkaido University, Japan. This collaboration includes the exchange of undergraduate and postgraduate students through a recognized exchange program. We believe that through this program, our students can seize the opportunity to develop their skills, gain new experiences, and establish a network with overseas partners. **(Please refer to the attachment file for the collaboration document).**

Expert comments in Preliminary assessment on Criterion 3.1 (Staff and Development)

In conclusion, the experts confirm that the composition and academic orientation of the teaching staff are appropriate for the successful implementation and sustainability of both programmes under review. The University and the Faculty support their staff and provide adequate opportunities for the development of professional and teaching skills. However, due to impending retirements in the BPP and the development of new study programmes, the experts are of the opinion that the University needs to plan for the development of its human resources.

Response of expert comments in preliminary assessment on Criterion 3.1 (Staff and Development)

One staff member of BPP is set to retire in January 2025, resulting in a decline in the teaching staff at BPP. However, the university (Unhas), specifically the Faculty of Mathematics and Natural Sciences, is actively recruiting new teaching staff through the Department of Higher Education. As a result of this recruitment effort, two new teaching staff members were accepted in 2024. The details of the successful candidates from the open recruitment can be seen in the figure A2.

Expert comments in Preliminary assessment on Criterion 3.3 (Funds and equipment)

However, the experts recommend BPP to continuously modernize lab equipment. In this context, the auditors also ask for a list of experiments. In addition, it is desirable to improve the computer facilities in Theoretical Physics and Computational Laboratory. Furthermore, the experts ask the department for a list of experiments available in the basic physics lab (see section D), as they were not able to see this lab for students because it was under renovation. Moreover, the interviewed students complain about the unstable internet connection in the campus.

Response of expert comments in preliminary assessment on Criterion 3.1 (Staff and Development)

Hasanuddin University, particularly the Faculty of Mathematics and Natural Sciences (MIPA), is dedicated to enhancing and evolving the learning process by acquiring the latest experimental tools. This commitment is evident in the recent acquisition of three modern physics equipment by the Physics Department as shown in Figure A3. Additionally, the Physics Department has secured funding from the Ministry of Education and Culture (Higher Education), facilitated through the Faculty of Mathematics and Natural Sciences **(please refer to new equipment in the file attachment)**. This demonstrates the Faculty's commitment to supporting the advancement of learning and research for students.

Table A1. List of experiment in Electronic and Instrumentation Laboratory

No	Name of Subject	List of Experiment	Semes-ter	Lab
1	Physics I	1. Basic Measurements and Un-certainties 2. Young Modulus 3. Viscosity 4. Newton's Law of Cooling 5. Oscillation Motion 6. Surface Tension	I	Basic Physics
2	Physics II	1. Melde's Experiment 2. Electrolysis 3. Optical Lens	II	Basic Physics
3	Physical in Electronic I	1. Measuring Instrument and Passive Component 2. Direct Current Circuit 3. Alternative Current Circuit 4. Diode 5. Power Supply 6. Grounded Base Amplifier 7. Grounded Emitter Amplifier 8. Grounded Collector Amplifier 9. Field Effect Transistor	III	Electronic and Instrumentation
4	Physical in Electronic II	1. OP-AMP 2. OP-AMP 2 3. OP-AMP 3 4. Feedback Amplifier 5. Filter 6. Oscillator	IV	Electronic and Instrumentation
5	Digital Electronics	1. Digital Logic Trainer 2. Combinatorial Logic	IV	Electronic and Instrumentation

		3. Multiplexer 4. Encoder and Decoder 5. Flip-Flop 6. Shifter Register 7. Counter		
6	Sensor System	1. Temperature and Humidity Sensor 2. Gas and pH Sensor 3. Chemical Sensor 4. Biosensor 5. Flow and Volume Sensor 6. Mass and Pressure Sensor 7. Motion and Position Sensor	V	Electronic and Instrumentation
7	Material Characterization Technique	1. X-ray diffraction (X-RD) 2. X-ray florescence (X-RF) 3. Fourier Transform Infra-red (FTIR) 4. UV-Vis 5. Kramer-Kronig Method (K-K)	V	Material and Energy

Similarly, the Theoretical and Computational Physics Laboratory has received computer equipment to enhance students' learning and research processes. The procurement process for this equipment is currently underway. Proof of the procurement of these tools can be seen in the figure A4.

Regard to the unstable internet connections in the campus.

The total channel width for Internet access at Unhas is 5 Gbps (4 Gbps via Telkom, 1 Gbps via Indosat). There are no restrictions for internet access across all faculties, except for the Gowa Engineering Campus, which is limited to 1 Gbps. Users at Unhas are required to log in to the integrated internet system (using an Apps account), and their access speed will be limited based on their role. Students are granted access up to 10 Mbps, while lecturers are given access up to 20 Mbps.

Expert comments in Preliminary assessment on Criterion 4.2 (Diploma and Diploma Supplement)

The transcript of Records contains the marks for each module. Nevertheless, the BPP needs to ensure that the ILO stated in the Diploma Supplement and in the Study Program Guide must be consistent with each other.

Response of expert comments in preliminary assessment on Criterion 4.2 (Diploma and Diploma Supplement)

We have revised the ILO state in the Diploma Supplement that consistent within the Study Program Guide. **(Please refer to updated the Diploma Supplement in the attachment file)**

The additional document is also attached in the our response including

1. New module structure of BPP
2. Updated Module handbook
3. List of experiments available in the basic physics lab

(Please refer to additional document in the file attachment).“

F Summary: Expert recommendations (24.05.2024)

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Statistics	With requirements for one year	30.09.2030	–	
Ba Physics	With requirements for one year	30.09.2030	–	

Requirements

For all degree programmes

A 1. (ASIIN 5) Organise the teaching evaluation in such a way that a feedback of the results to the students is ensured.

For the Bachelor's degree programme Physics

A 2. (ASIIN 1.3) The compulsory modules in the third semester with related content need to be properly distributed over the semesters, in order to make sure that the core competence can be achieved by the students with proper sequence and time.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to further strengthen the soft skills training for students, e.g. by inviting alumni to conduct workshops on the subject.

E 2. (ASIIN 1.3) It is recommended to keep an eye on the success of the students in the IISMA (competition to go abroad for a semester) and to increase the efforts in the international exchange of students.
E 3. (ASIIN 3.1) It is recommended that UNHAS plan human resource development timely in case of upcoming retirements or development of new study programmes.
E 4. (ASIIN 3.1) It is recommended to give young lecturers more scope for research and qualification (e.g. by reducing the teaching load).

For the Bachelor's degree programme Physics

E 5. (ASIIN 3.3) It is recommended to increase the equipment in the area of Modern Physics and add some modern physics experiment especially in the optics (scattering, diffraction, superposition).
E 6. (ASIIN 3.3) It is recommended to broaden the range of experiments offered in the basic physics laboratory.

G Comment of the Technical Committees 12- Mathematics and 13 – Physics (13.06.2024)

Technical Committee 12 – Mathematics (11.06.2024)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee supports the requirement without any changes. In addition, it decide on changes regarding the recommendation E1. The Technical Committee considers that it should remain open to the university how it aims to improve the soft skills of students. Furthermore, the Technical Committee reshapes the focus of E4. In their opinion, the university should seek to expand the opportunities for research and qualification for all staff; however, the measures should be decided by the university.

The Technical Committee 12 – Mathematics recommends the award of the seals as follows:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Statistics	With requirements for one year	30.09.2029	–	

Requirements

For all degree programmes

A 1. (ASIIN 5) Organise the teaching evaluation in such a way that a feedback of the results to the students is ensured.

For the Bachelor's degree programme Physics

A 2. (ASIIN 1.3) The compulsory modules in the third semester with related content need to be properly distributed over the semesters, in order to make sure that

the core competence can be achieved by the students with proper sequence and time.

Recommendations

For all degree programmes

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

E 2. (ASIIN 1.3) It is recommended to keep an eye on the success of the students in the IISMA (competition to go abroad for a semester) and to increase the efforts in the international exchange of students.

E 3. (ASIIN 3.1) It is recommended that UNHAS plan human resource development timely in case of upcoming retirements or development of new study programmes.

E 4. (ASIIN 3.1) It is recommended to give lecturers more opportunities for research and qualification.

For the Bachelor's degree programme Physics

E 5. (ASIIN 3.3) It is recommended to increase the equipment in the area of Modern Physics and add some modern physics experiment especially in the optics (scattering, diffraction, superposition).

E 6. (ASIIN 3.3) It is recommended to broaden the range of experiments offered in the basic physics laboratory.

Technical Committee 13 – Physics (11.06.2024)

Assessment and analysis for the award of the ASIIN seal:

The Technical Committee discusses the procedures. Regarding A1, the TC wonders how much flexibility the programme and the university have to restructure the curriculum despite this regulation. As the curriculum as it is now is not satisfactory, they feel that this point should be kept as a requirement anyway.

With regard to E5, the TC clarified the meaning of this recommendation, stating that the recommendation deals with the equipment used in the advanced physics laboratory

courses and that rather than increasing it, it is desirable to further modernise the equipment. The last part is deleted, as the TC does not consider this specification to be relevant.

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

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Physics	With requirements for one year	30.09.2029	–	

Requirements

For all degree programmes

A 1. (ASIIN 5) Organise the teaching evaluation in such a way that a feedback of the results to the students is ensured.

For the Bachelor's degree programme Physics

A 2. (ASIIN 1.3) The compulsory modules in the third semester with related content need to be properly distributed over the semesters, in order to make sure that the core competence can be achieved by the students with proper sequence and time.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to further strengthen the soft skills training for students, e.g. by inviting alumni to conduct workshops on the subject.

E 2. (ASIIN 1.3) It is recommended to keep an eye on the success of the students in the IISMA (competition to go abroad for a semester) and to increase the efforts in the international exchange of students.

E 3. (ASIIN 3.1) It is recommended that UNHAS plan human resource development timely in case of upcoming retirements or development of new study programmes.

E 4. (ASIIN 3.1) It is recommended to give young lecturers more scope for research and qualification (e.g. by reducing the teaching load).

For the Bachelor's degree programme Physics

E 5. (ASIIN 3.3) It is recommended to further modernize the equipment used in the advanced physics laboratory courses.

E 6. (ASIIN 3.3) It is recommended to broaden the range of experiments offered in the basic physics laboratory.

H Decision of the Accreditation Commission (28.06.2024)

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

The Accreditation Commission discusses the procedures and follows the assessment of the auditors and the changes proposed by the technical committees. In addition, it adds some clarifications in the recommendations E2, E3, E4 and E5.

The Accreditation Commission decides to award the following seals:

Degree Programme	ASIIN Seal	Maximum duration of accreditation	Subject-specific label	Maximum duration of accreditation
Ba Statistics	With requirements for one year	30.09.2029	–	
Ba Physics	With requirements for one year	30.09.2029	–	

Requirements

For all degree programmes

A 1. (ASIIN 5) Organise the teaching evaluation in such a way that a feedback of the results to the students is ensured.

For the Bachelor's degree programme Physics

A 2. (ASIIN 1.3) The compulsory modules in the third semester with related content need to be properly distributed over the semesters, in order to make sure that the core competence can be achieved by the students with proper sequence and time.

Recommendations

For all degree programmes

E 1. (ASIIN 1.3) It is recommended to further strengthen the soft skills training for students.
E 2. (ASIIN 1.3) It is recommended to keep an eye on the success of the students in the IISMA (competition to go abroad for a semester) and to increase the efforts concerning the international exchange of students.
E 3. (ASIIN 3.1) It is recommended that UNHAS plans human resource development timely given upcoming retirements or development of new study programmes.
E 4. (ASIIN 3.1) It is recommended to give members of the-teaching staff, especially junior-lecturers, more opportunities for research and professional development.

For the Bachelor's degree programme Physics

E 5. (ASIIN 3.3) It is recommended to further modernize the equipment used in the advanced physics laboratory courses
E 6. (ASIIN 3.3) It is recommended to broaden the range of experiments offered in the basic physics laboratory.

I Fulfilment of Requirements (27.06.2025)

Analysis of the experts and the Technical Committee/s (16.06.2025)

Requirements

For all degree programmes

A 1. (ASIIN 5) Organise the teaching evaluation in such a way that a feedback of the results to the students is ensured.

Initial Treatment	
Experts	not (completely) fulfilled (only fulfilled for **Bachelor in Statistics**) Justification: For the Bachelor programme in Statistics, a detailed documentation is provided which demonstrate that students receive feedback on the teaching evaluations and the conclusions drawn from them through various activities such as discussions and outreach sessions, in-class announcements by course lecturers, academic community gatherings, and through the BPS website. A comparable documentation is however not available for the Bachelor programme in Physics. It is unclear whether the survey results were communicated to the students. It rather appears that the requirement was misunderstood in the sense that the feedback given by the lecturers should be evaluated by the students. The Bachelor programme in Physics could take the measures taken by the bachelor programme in statistics as a guiding line.
TC 12	not completely fulfilled Vote: unanimous Justification: The TC follows the assessment of the experts.
TC 13	not completely fulfilled Vote: unanimous Justification: The TC follows the assessment of the experts.

For the Bachelor's degree programme Physics

A 2. (ASIIN 1.3) The compulsory modules in the third semester with related content need to be properly distributed over the semesters in order to make sure that the core competence can be achieved by the students with proper sequence and time.

Initial Treatment	
Experts	Fulfilled Justification: A new curriculum will be implemented from the first semester of the 2025/26 academic year, as evidenced by the Dean of the Faculty of Mathematics and Natural Sciences' letter of commitment. The experts are of the opinion that it is designed to significantly reduce the difficulties experienced by students in the third semester. Shifting several compulsory courses to semesters 4 and 5 gives students more time to develop a better understanding of the subject.
TC 13	fulfilled Vote: unanimous Justification: The TC follows the assessment of the experts.

Decision of the Accreditation Commission (27.06.2025)

Degree programme	**ASIIN-label**	**Accreditation until max.**
Ba Physics	Requirement 1 not fulfilled	6 months prolongation
Ba Statistics	All requirements fulfilled	30.09.2029

Appendix: Programme Learning Outcomes and Curricula

According to PO and Diploma Supplement, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Bachelor's degree programme Physics (BPP)**.

The Program Educational Objectives (PEO) for **BPP** are as follows:

1. "Attaining a profound understanding of physics fundamental principles and theories and demonstrating the ability to apply this knowledge to solve problems.
2. Exhibiting the ability to apply proficiency in physics to diverse career paths, encompassing scientific research, engineering, education, and public policy.
3. Having the competence to conceive and conduct experiments, alongside the ability to analyze and interpret the resulting data".

The Intended Learning Outcomes (ILO) for **BPP** are described as follows:

"**Knowledge (Kn):**

ILO 1: Students will have relatively deep understood in classical and basic quantum physics.

ILO 2: Students will be able to use the fundamental principles of physics in modeling and computation to solve the complex physical problem.

ILO 3: Students will be able to use the basic principles of physics in technology application.

Ability (Ab)

ILO 4: Students will have capability to operate the physical instrumentation in the laboratory and conduct experiments and interpret the result.

ILO 5: Students will be able to write a scientific report and final project according to standard scientific rules.

Competence (Co)

ILO 6: Students will be able to use the mathematical method to solve the physical related-problem.

ILO 7: Students will be able to identify the physical problems based on the experimental results.

Social (So)

ILO 8: Students will be able to develop their skill and maintain a network with colleagues

ILO 9: Students will be able to demonstrate a social awareness, respects to diversity of religion, ethnicities, and cultures".

According to PO and Diploma Supplement, the following **objectives** and **learning outcomes (intended qualifications profile)** shall be achieved by the **Bachelor's degree programme Statistics (BPs)**.

For **BPS**, following PEOs are formulated:

"PEO1. Demonstrate a systematic and comprehensive understanding of statistical concepts, enabling them to adapt to the dynamic advancements in science and technology readily.

PEO2. Apply their statistical and computational proficiency adeptly to address various theoretical and practical challenges.

PEO3. Exhibit the capability to collaborate effectively within team settings and to thrive competitively within the professional work environment".

The ILOs for **BPS** are as follows:

"**Social**

ILO 1: The students are able to demonstrate awareness moral values and professional ethics in the life of the nation and state

Knowledge

ILO 2: Students will be able to demonstrate understanding about statistics theory, data analysis, especially with data in the Indonesian maritime continent.

Ability

ILO 3: Students will be able to manage documenting, storing, securing, and recovering data to ensure validity and prevent plagiarism.

ILO 4: The students will be able to apply logical, critical, systematic, and innovative thinking in the development of science and technology to produce solutions, ideas, and scientific writing.

Competence

ILO 5: The students are able to show mastery in the basic concepts of statistical science and statistical analysis methods that can be applied in various fields.

ILO 6: The students are able to make decisions appropriately in the context of problem solving in their field of expertise, based on the results of information and data analysis.

ILO 7: The students are able to apply an efficient data collection design used in appropriate form.

ILO 8: The students are able to solve the real problems statistically, presenting and communicating in a form that is easy to understand both in written and orally.

ILO 9: The Students are able to perform data management and analysis using statistical techniques with the help of software".

The following **curriculum** for **Bachelor's Degree Programme Physics (BPP)** is presented:

2023 CURRICULUM STRUCTURES OF BPP

Code	Cources	Credit				Status (C/E)
		Theory	Lab	Field of Study	Total (SKS)	
Semester I						
23U01110102	Islamic education	2			2	C
23U01110202	Catholic Education	2				
23U01110302	Protestant Education	2				
23U01110402	Hindu Education	2				
23U01110502	Buddhist Education	2				
23U01110602	Confucian Education	2				
23U01110702	Pancasila	2			2	C
23U01110802	Civic Education	2			2	C
23U01110902	Indonesian Language	2			2	C
23H01110803	Basic Mathematics	3			3	C
23H02110103	Basic Physic I	2	1		3	C
23H03112703	Basic Chemistry	2	1		3	C
23H04110103	Basic Biology	2	1		3	C
Workload in Semester I					**20**	
Semester II						
23U01111002	Insight of Maritime Cultural Social and IPTEKS	2			2	C
23U01111102	English	2			2	C
23H02110803	Basic Physics 2	2	1		3	C
23H02110304	Mathematical Physics 1	4			4	C
23H02110403	Basic Mechanics	3			3	C
23H02110503	Statistical Thermodynamics	3			3	C
23H02110603	Wave Physics	3			3	C
Workload in Semester II					20	
Semester III						
23H02120102	Physical Electronics 1	2			2	C
23H02120201	Physical Electronics Laboratory 1		1		1	C
23H02120402	Computational Physics	2			2	C
23H02120501	Computational Physics Laboratory		1		1	C
23H02120603	Quantum Physics	3			3	C
23H02120704	Mathematical Physics 2	4			4	C
23H02121003	Electromagnetic Field Theory 1	3			3	C
23H02121103	Atom and Molecule Physics	3			3	C
23H02120903	Advance Mechanics	3			3	E

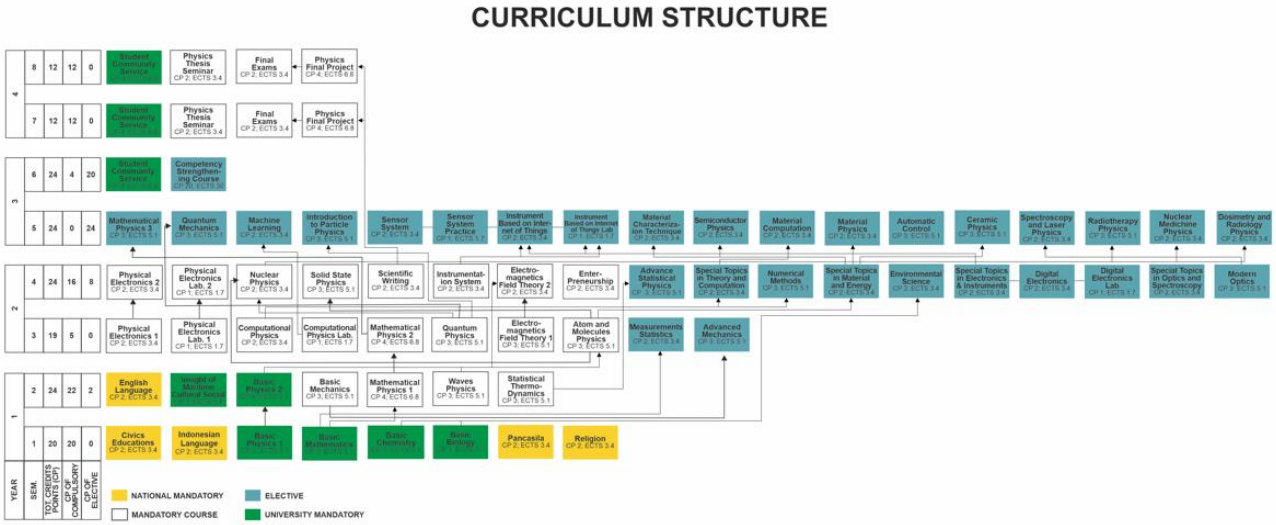
23H02120602	Measurement Statistic	2			2	E
Workload in Semester III					**24**	
Semester IV						
23H02121102	Physical Electronics 2	2			2	C
23H02121201	Physical Electronics Laboratory 2		1		1	C
23H02121303	Advance Statistical Physics	3			3	E
23H02121403	Solid State Physics	3			3	C
23H02121502	Scientific Writing	2			2	C
23H02121602	Instrumentation System	2			2	C
23H02121702	Electromagnetic Field Theory 2	2			2	C
23H02120802	Nuclear Physics	2			2	C
23H02110102	Entrepreneurship	2			2	C
LSEC (Laboratory Specialization Elective Courses)		5			5	E
Workload in Semester IV					**24**	
LSEC (Laboratory Specialization Elective Courses)						
Semester IV						
Theory and Computation Specialization						
23H02130202	Special Topics in Theory and Computation	2			2	E
23H02130403	Numerical Method	3			3	E
Material and Energy Specialization						
23H02133302	Special Topics in Material and Physical Energy	2			2	E
23H02122303	Environmental Science	3			3	E
Electronic and Instrumentation Specialization						
23H02131702	Special Topics in Electronics and Instrumentation	2			2	E
23H02131502	Digital electronics	2			2	E
23H02131601	Digital electronics Lab		1		2	E
Medical Physics and Optical Spectroscopy Specialization						
23H02134702	Special Topics in Optics and Spectroscopy	2			2	E
23H02134803	Modern Optics	3			3	E
Semester V						
Theory and Computation Specialization						
23H02130103	Mathematical Physics 3	3			3	E
23H02130303	Quantum Mechanic	3			3	E
23H02130502	Introduction to Linux	2			2	E
23H02130602	Introduction to Internet Programming	2			2	E

23H02130703	General Theory of Relativity Teori	3			3	E
23H02130803	Nonlinear Dynamics	3			3	E
23H02130903	Condensed Matter Physics	3			3	E
23H02131003	Relativistic Quantum Mechanics	3			3	E
23H02131102	Machine Learning	2			2	E
23H02131203	Introduction to Particle Physics	3			3	E
23H02131302	Digital Image Processing	2			2	E
23H02131403	Phase Change Theory	3			3	E
Total					**29**	
Material and Energy Specialization						
23H02133002	Material & Energy Physics Experiments		2		2	E
23H02133103	Renewble Energy	3			3	E
23H02133203	Ceramics Physics	3			3	E
23H02133403	Material Characterization Technique	2			2	E
23H02133502	Biophysics	2			2	E
23H02133602	Acoustical Physics	2			2	E
23H02133702	Photonic Physics	2			2	E
23H02133802	Material Physics	2			2	E
23H02133902	Semiconductor Physics	2			2	E
23H02134002	Material Computation	2			2	E
23H02134102	Optoelectronic Device Materials	2			2	E
23H02134302	Radioecology	2			2	E
Total					**26**	
Electronic and Instrumentation Specialization						
23H02131802	Microprocessor	2			2	E
23H02131901	Microprocessor Practice		1		1	E
23H02132002	Sensor System	2			2	E
23H02132101	Sensor System Practice		1		1	E
23H02132202	Instrumentation based on IoT	2			2	E
23H02132301	Instrumentation based on Iot Practice		1		1	E
23H02132403	Medical Instrumentation	3			3	E
23H02132503	Automatic Control	3			3	E
23H02132602	Microcontroller	2			2	E
23H02132701	Microcontroller Practice		1		1	E
23H02132802	Smart Sensors	2			2	E
23H02132901	Smart Sensors Practice		1		1	E
Total					**21**	
Medical Physics and Optical Spectroscopy Specialization						
23H02134503	Radiodiagnostic and	3			3	E

	Intervensional of Physics					
23H02134603	Radio Therapy Physics	3			3	E
23H02134902	Anatomy and Physiology	2			2	E
23H02135002	Health Physics and Radiation Protection	2			2	E
23H02135102	Spectroscopy and Laser Physics	2			2	E
23H02135202	Medical Imaging Physics	2			2	E
23H02135302	Dosimetry and Radiology Physics	2			2	E
23H02135402	Optical Fibre Physics	2			2	E
23H02135502	Nuclear Medicine Physics	2			2	E
23H02135603	Magnetic Resonance Imaging	3			3	E
23H02135702	Radiobiology	2			2	E
23H02134801	Medical Physics Practice		1		1	E
Total					**26**	
Semester VI						
23U02132904	Student Community Service			4	4	C
Competency Supporting Courses (CSC)				20	20	E
Workload in Semester VI					**24**	
Semester VII/VIII						
23U02132904	Student Community Service			4	4	C
23H02140502	Physics Thesis Seminar	2			2	C
23H02141002	Final Exams	2			2	C
23H02140904	Physics Final Project	4			4	C
Workload in Semester VII/VIII					**12**	
Competency Supporting Courses (CSC)						
23U02130102	Communication and cooperation			2	2	E
23U02130202	Activity Management			2	2	E
23U02130302	Negotiation Strategy			2	2	E
23U02130402	Active learning			2	2	E
23U02130502	Digital Communications			2	2	E
23U02130602	Social Empathy			2	2	E
23U02130702	Cultural Diversity			2	2	E
23U02130802	Community development			2	2	E
23U02130902	Startup Entrepreneurship			2	2	E
23U02131002	Startup Entrepreneurship			2	2	E
23U02131102	Innovative Leadership			2	2	E
23U02131202	Decision-making			2	2	E
23U02131302	Solution to problem			2	2	E
23U02131402	Professional ethics			2	2	E

23U02131502	Think critically and creatively			2	2	E
23U02131602	Solutive Creativity			2	2	E
23U02131702	Innovation and Design Thinking			2	2	E
23U02131801	Talent Development			1	1	E
23U02131902	Talent Development			2	2	E
23U02132002	Scientific Literacy and Presentation			2	2	E
23U02132102	Internship/Work Practice			2	2	E
23U02132203	Internship/Work Practice			3	3	E
23U02132304	Internship/Work Practice			4	4	E
23U02132406	Internship/Work Practice			6	6	E
23U02132509	Internship/Work Practice			9	9	E
23U02132602	Independent Study/Project			2	2	E
23U02132704	Independent Study/Project			4	4	E
23U02132806	Independent Study/Project			6	6	E
23U02133020	Independent Research			20	20	E
23U02133120	Development of Creativity and Innovation			20	20	E
23U02133220	State Defense Leadership and Character			20	20	E
23U02133320	Benefit BMI			20	20	E
23U02133420	Entrepreneurship Development and Strengthening			20	20	E
23U02133520	Practices of the Business World/Industry World			20	20	E
23U02133620	Humanist Character Development			20	20	E

Updated Curriculum structure for Bachelor's Degree Programme Physics (BPP):



Bachelor's Degree Programme Statistics

Scope area	No	Courses	CP/ECTS		Semester
National Mandatory Courses	1	Religion	2	3,4	1
	2	Pancasila	2	3,4	1
	3	Indonesia Language	2	3,4	1
	4	General English	2	3,4	2
	5	Civic Education	2	3,4	2
Number of University Compulsory Courses			**10**	**17**	
University Mandatory Courses	6	Maritime Perspective	2	3,4	1
	7	Calculus 1	3	5,1	1
	8	Basic Physics 1	3	5,1	1
	9	Basic Chemistry	2	3,4	1
	10	Basic Biology	2	3,4	1
	11	Entrepreneurship	2	3,4	1
	12	Science. Technology and Arts Perspectives	2	3,4	2
	13	Basic Physics 2	2	3,4	2
	14	Extracurricular	2	3,4	7
	15	Community Service Program	4	6,8	7
	16	Calculus 2	3	5,1	2
Number of University Mandatory Courses			**27**	**45,9**	
Compulsory Courses	17	Mathematics Logics	3	3,4	2
	18	Statistics Methods	3	5,1	2
	19	Data Analysis	3	5,1	2
	20	Algorithm and Program	3	5,1	2
	21	Linear Algebra	3	5,1	3
	22	Discrete Mathematics	3	5,1	3
	23	Advanced Calculus	3	5,1	3
	24	Numerical Methods	3	5,1	3
	25	Database Systems	3	5,1	3
	26	Matrix algebra	3	5,1	4
	27	Introduction to Real Analysis	3	5,1	4
	28	Statistics Non-parametrics	3	5,1	4
	29	Sampling Techniques	3	5,1	4
	30	Probability Theory	3	5,1	4
	31	Regression Analysis	3	5,1	5
	32	Time Series Analysis	3	5,1	5
	33	Statistics Computing	4	6,8	5

Scope area	No	Courses	CP/ECTS		Semester
	34	Research Methods	3	5,1	5
	35	Mathematical Statistics	3	5,1	5
	36	Stochastic Processes	3	5,1	6
	37	Multivariate Analysis	3	5,1	6
	38	Field Study	3	5,1	6
Number of Compulsory Courses			**67**	**112,2**	
Elective Courses	38	Insurance Mathematics	3	5,1	3
	39	Finance Mathematics 1	3	5,1	3
	40	Differential Equations	3	5,1	3
	41	Introduction to Economy	3	5,1	3
	42	Probability Graph	3	5,1	4
	43	Finance Mathematics 2	3	5,1	4
	44	Introduction to Linear Model	3	5,1	4
	45	Operation Research	3	5,1	4
	46	Categorical Data Analysis	3	5,1	5
	47	Survival Analysis	3	5,1	5
	48	Likelihood Inferences	3	5,1	5
	49	Statistics Quality Control	3	5,1	5
	50	Independent Course	3	5,1	5
	51	Market Research	3	5,1	6
	52	Capita Selecta of Statistics	3	5,1	6
	53	Statistics Modeling	3	5,1	6
	54	Spatial Data Analysis	3	5,1	6
	55	Introduction to Data Mining	3	5,1	6
	56	Probability and Measure Theory	3	5,1	6
	57	Experimental Design	3	5,1	6
	58	Risk management	3	5,1	7
	59	Survey Design and Analysis	3	5,1	7
	60	Econometrics	3	5,1	7
	61	Introduction to Statistics Bayesian	3	5,1	7
	62	Statistics Demographics Techniques	3	5,1	7
	63	Internships 1	3	5,1	7
	64	Internships 2	3	5,1	7
	65	Internships 3	3	5,1	7
	66	Internships 4	3	5,1	8
	67	Internships 5	3	5,1	8
	68	Internships 6	3	5,1	8
Number of Elective Courses			**93**	**158,1**	
	69	Proposal Seminary	1	1,7	8

Scope area	No	Courses	CP/ECTS		Semester
Research Capacity and Scientific Writing	70	Result Seminary	2	3,4	8
	71	Undergraduate of Thesis	4	6,8	8
Number of Research Capacity and Scientific Writing			**7**	**11,9**	