2021

CURRICULUM STUDY PROGRAMME

Bachelor in Forestry
Faculty of Agriculture
University of Bengkulu

CURRICULUM OF 2021
INDEPENDENT LEARNING – INDEPENDENT CAMPUS
(*MERDEKA BELAJAR – KAMPUS MERDEKA*)

BACHELOR IN FORESTRY PROGRAMME
UNIVERSITY OF BENGKULU

IDENTITY OF STUDY PROGRAMME

a.	University	:	University of Bengkulu
b.	Faculty supervising the study program	:	Faculty of Agriculture
c.	Program type	:	Undergraduate (S1)
d.	Study program (SP)	:	Forestry
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g.	*E-mail* and *Website*	:	forestry@unib.ac.id https://agriculture.unib.ac.id/bf/
h.	Number of decrees of the establishment of the university	:	Presidential Decree No. 17/1982
i.	Date of the decree of the university establishment	:	24 April 1982
j.	The official signing of the decree of university establishment	:	Soeharto (President of the Republic of Indonesia)
k.	Number decree of study program establishment	:	Directorate General of Higher Education Decree No. 308/DIKTI/KEP/1993
l.	The effective date of the decree of SP establishment.	:	10 May 1993
m.	The official signing of the decree of SP establishment	:	Soekadji Ranuwihardjo (Directorate General of Higher Education Official)
n.	The year of accepted students for the first time	:	1993
o.	Current category of accreditation	:	B
p.	The expiration date of accreditation	:	21 May 2026
q.	Number of Decree of BAN-PT	:	3231/SK/BAN-PT/Ak-PPJ/S/V/2021
r.	Title of the graduate	:	Bachelor Science in Forestry (*Sarjana Kehutanan*)
s.	Vision of the study program	:	Becoming a high-quality forestry education institution and contributing nationally and internationally with a specialization in community-based tropical forest management by 2025
t.	Mission of the study program	:	1. Providing high-quality education, research, and community service in the forestry sector to achieve community-based tropical forest management 2. Implementing high-quality governance of the forestry study program 3. Collaborating in the forestry sector at the national and/or international level to support the implementation of Three Pillars of Higher Education

FOREWORD

This Academic Paper on the Curriculum 2021 of Independent Learning – Independent Campus (*Merdeka Belajar Kampus Merdeka*/MBKM) of the Bachelor in Forestry, Faculty of Agriculture, University of Bengkulu has been prepared based on the Decree of the Ministry of Education and Culture No. 3/2020 regarding Standard of National Higher Education, particularly on articles 15 – 18 about Standard of Learning Process. As described by the Directorate General of Higher Education in the Guideline for the Preparation of Curriculum in Higher Education in the industrial era 4.0 to support MBKM (Dirjen Dikti Kemendikbud, 2020), MBKM aimed to encourage the student to gain learning experience by various additional competencies outside the study programme or their campuses.

We would like to thank those who have been involved in the preparation of this work:

1. Dean of the Faculty of Agriculture UNIB for supervising the team in preparing the Academic Paper of the MBKM Curriculum for the Bachelor in Forestry Program.
2. Head of the Institute of Research and Community Services (LPPMP) UNIB for guiding the team in preparing the document
3. Vice Dean for Academic Affairs, Faculty of Agriculture UNIB, for helping the team prepare the document.

It is hoped that this document could help guarantee the achievement of the graduate profile and graduate learning outcomes (CPL) in the learning process.

Bengkulu, December 2021

Team

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CHAPTER I
INTRODUCTION

Along with the progress of civilization, universities face fundamental changes in various sectors. Universities are required to provide quality education to produce graduates possessing high creativity and adaptability to changes in the post-campus world. Even at more ideal level, the graduates are expected to be able to become agents of change so that they can color a more valuable civilization. The fundamental question that eventually arises is what abilities must be possessed by university graduates to keep up with the times and color changes in civilization. The discourse on improving the quality of higher education in Indonesia puts more emphasis on four significant changes that are used as the basis of pillars of education: (i) learning to know, (ii) learning to do, (iii) learning to live together (with others), and (iv) learning to be, and; lifelong learning.

The Bachelor in Forestry Program (The BFT Programme) is one of the valuable assets in producing graduates who can color development in the forestry sector and natural resource and environmental management. Along with changes and progress in the sector, the BFT Programme is required to improve to produce graduates who are not only able to adapt to the changes that occur but are also able to compete to become pillars and main actors in the change process. These desires and ideals are not easy to achieve because of the great challenge ahead, such as the sociocultural change of society that turns and tends to be hedonistic and pragmatic. One of the efforts and concrete steps that can be taken is to update the curriculum as an anticipatory measure that can be used as a philosophy and reference in conducting the teaching and learning process for students. The curriculum is a program prepared to implement and achieve an educational goal. So, the curriculum can be interpreted as a program, program documents, and program implementation. As a document, the curriculum consists of course details, syllabus, learning design, and evaluation system.

The curriculum in the BFT Programme has been changed several times. The last change was made in 2017, in which the legality is written in the Rector's Decree Number: 724/UN30/HK/2018 concerning the SN-DIKTI-Based Curriculum 2017 for the BFT Programme. The graduate's profile to be produced from the 2021 MBKM curriculum update, besides continuing to demand mastery of knowledge and skills, personality attitudes, and behaviors, but more emphasis on strengthening the competence of graduates who are creative, intelligent, and full of responsibility to become agents of change in the Indonesian forestry sector.

Currently, universities are under the Ministry of Education and Culture. The concept of higher education issued by the Ministry of Education and Culture is the 4 pillars of the policy called the Independent Campus (Kampus Merdeka). The four pillars of the Independent Campus policy include the opening of new study programs, the higher education accreditation system, higher institutions with legal entities, and the right of students to study outside the study program. The policy of providing opportunities for students to study for a maximum of 3 (three) semesters outside of their study program is also known as Independent Learning (Kampus Merdeka). It is stated in the Regulation of the Minister of Education and Culture (Permendikbud) No. 3 of 2020 concerning National Higher Education Standards.

As a follow-up to the fourth pillar higher education concept issued by the Ministry of Education and Culture, the BFT Programme updated the 2017 KKNI curriculum to be migrated to the Curriculum of 2021, Independent Learning – Independent Campus (MBKM).

Independent Learning – Independent Campus Curriculum (K-MBKM) prepared by the BFT Programme is based on Permendikbud Number 3 of 2020 concerning National Higher Education Standards on Learning Process Standards, especially in articles 15 to 18. As stated in the guidelines for preparing higher education curriculum in the industrial era 4.0 to support MBKM (Dirjendikti Kemendikbud, 2020) that MBKM aims to encourage students to gain learning experiences with various additional competencies outside the study program and/or outside their campus. The fulfillment of the study period and load for undergraduate or applied undergraduate students can be carried out: 1) following the entire learning process in the study program at the university

according to the **whole** study period and load; and 2) participating in the learning process in the study program to fulfill **part** of the time, and learning load and the rest follow the learning process outside the study program. Meanwhile, universities are required to facilitate the implementation of this MBKM.

In the curriculum for implementing MBKM, as stated by the Directorate General of Higher Education (2020), there are at least four important things to consider in developing and implementing a curriculum of MBKM. First, stay focused on achieving graduate learning outcomes (CPL). Second, it is ensured that to fulfill the right to study for a maximum of 3 semesters, students get a learning experience with additional competencies related to the CPL of their study program. Third, with the implementation of MBKM, students get real-world learning experiences according to their profile or study field. Fourth, the curriculum designed and implemented is flexible and able to adapt to the development of science and technology and the needs of the job market (market signals).

The Directorate General of Higher Education (2020) also stated that the MBKM policy is supported by a variety of learning forms (Article 14 SN-Dikti) and facilities for students to take their studies in three (3) semesters outside of their study program (Article 18 SN -Dikti). The implementation of the MBKM program is for the Applied Undergraduate and Undergraduate Programs (except in the field of Health and Medicine). This program is still aimed at fulfilling the Graduate Learning Outcomes (CPL) determined by each study program but with different learning forms. The right of students to carry out learning activities outside their study program for 3 semesters provides the opportunity to gain additional competencies beyond the learning outcomes set by the BFT Programme as a provision to enter the working world after graduating from campus. In addition, the experience gained will strengthen the readiness of graduates to adapt to the development in the real world and society and foster lifelong learning habits.

Based on this background, the BFT Programme seeks to develop a curriculum to implement MBKM in 2021 so that it can be implemented in the learning process for the students. The framework designed and implemented by the BFT Programme follows the guidelines of the Directorate General of Higher Education, Ministry of Education and Culture (2020) as presented in Figure 1.

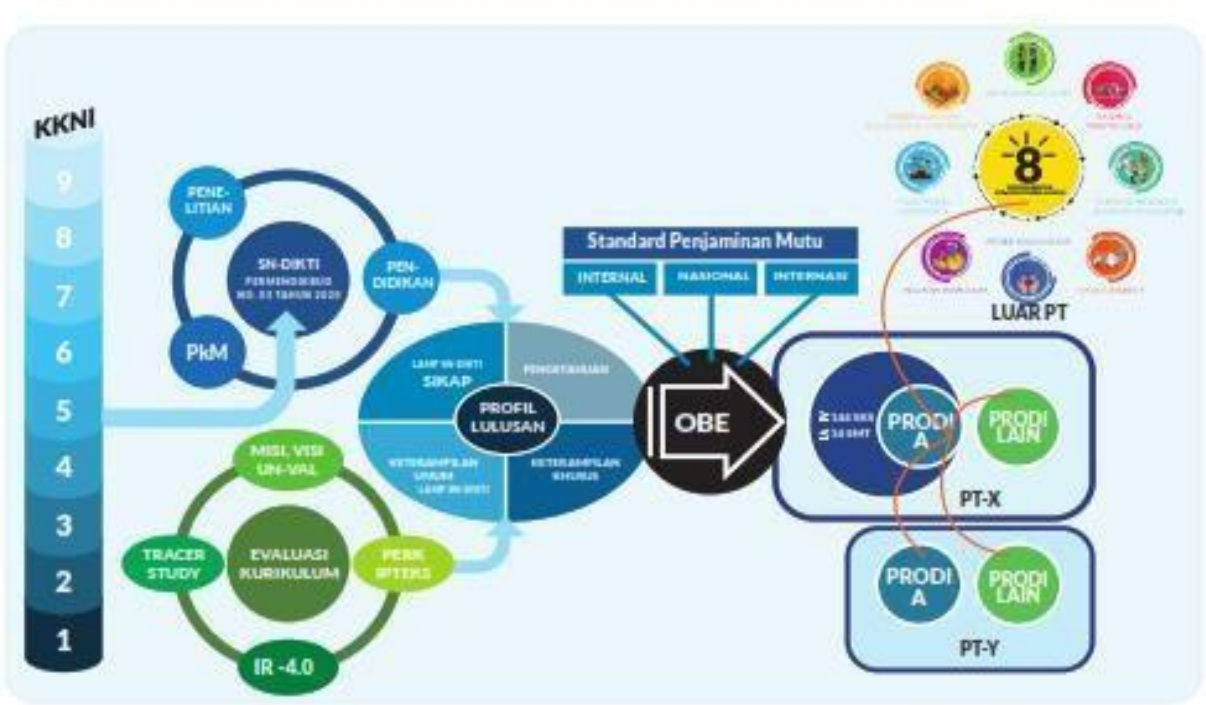

Figure 1. Curriculum framewrok to support MBKM implementation in the BFT Study Programme

CHAPTER II
THE IDENTITY OF STUDY PROGRAMME

2.1. Study Programme Profile

The full-time lecturer position of the BFT Programme is quite good in terms of educational level. Of 19 staff, 58% obtained doctoral degree and the rest hold master degree. Moreover, 95% of the staff possess lecturer certification issued by the Ministry of Education. Furthermore, the academic positions of the staff are also quite well, with the proportion as follows: professor (16%), associate professor (37%), and assistant professor (47%). These compositions are presented in Table 2.1.

Table 2.1. Composition of full-time lecturer position of the BFT Programme

No.	Lecturers	Degree	Grade	Academic position
(1)	(2)	(3)	(4)	(5)
1	Prof. Dr. Wiryono, M.Sc.	S3	IV/b	Professor
2	Prof. Dr. Ridwan Yahya, M.Sc.	S3	IV/b	Professor
3	Prof. Dr. Agus Susatya, M.Sc.	S3	IV/a	Professor
4	Dr. Guswarni Anwar, MP.	S3	IV/b	Associate Professor
5	Dr. Enggar Apriyanto, M.Sc.	S3	IV/a	Associate Professor
6	Dr. Hery Suhartoyo, M.Sc.	S3	IV/a	Associate Professor
7	Dr. Wahyudi Arianto, M.Si.	S3	IV/a	Associate Professor
8	Dr. Gunggung Senoaji, MP.	S3	IV/a	Associate Professor
9	Ir. Deselina, MP.	S2	IV/b	Associate Professor
10	Ir. Edi Suharto, MP.	S2	IV/b	Associate Professor
11	Dr. Erniwati, M.Sc.	S3	III/c	Assistant professor
12	Ir. Putranto BAN, M.Sc.	S2	III/d	Assistant professor
13	Dr. Nani Nuriyatin, M.Si.	S3	III/c	Assistant professor
14	Dr. Yansen, M.Sc.	S3	III/c	Assistant professor
15	Siswahyono, S.Hut., MP.	S2	III/c	Assistant professor
16	Saprinurdin, S.Hut., M.Sc.ForEcosys.	S2	III/c	Assistant professor
17	Efratenta K Depari, S.Hut., M.Si.	S2	III/c	Assistant professor
18	M. Fajrin Hidayat, S.Hut., M.Si.	S2	III/b	Assistant professor
19	Agung Hasan Lukman, S.Si., M.I.L.	S2	III/b	Assistant professor
20	Hefri Oktoyoki, S.Hut., M.Si.	S2	III/b	Assistant professor

The staff of the BFT Programme also has solid educational backgrounds and competencies with taught courses. The number of courses' conformity with the staff's competence is 81.81%. The distribution of lecturers teaching courses according to the specifications of the field area and core competencies is presented in Table 2.2.

Table 2.2. The staff and taught course

No.	Lecturers	Expertise	Code	Taught course	Class number
(1)	(2)	(3)	(4)	(5)	(6)
1	Agus Susatya	Biology of rafflesia, wildlife management, tropical forest conservation	KHT – 201	Dendrology	2
			KHT – 205	Forest resource inventory	2
			KHT – 213	Fundamentals of forest resource conservation	2
			KHT – 405	Wildlife management	1
			KHT – 412	Quantitative ecology	1

2	Ridwan Yahya	Forest product technology, pulpwood quality, wood structure, and anatomy	MFE – 200	Scientific writing	2
			KHT – 209	Basic properties of wood	2
			KHT – 305	Wood processing technology	2
			KHT – 404	Pulp and paper technology	1
			KHT – 411	Variation and improvement of wood quality	1
3	Wiryono	Ecology, biodiversity, ecosystem restoration, ethnobotany	KHT – 214	Forest ecology	2
			MFE – 300	Academic English	2
			KHT – 310	Forest harvesting	2
			KHT – 314	Non-timber forest products and environmental services	2
			KHT – 412	Quantitative ecology	1
4	Hery Suhartoyo	Restoration ecology, forest reclamation, and rehabilitation	MFE – 105	Introduction to natural resources and the environment	2
			KHT – 210	Research methods	2
			KHT – 211	Silviculture	2
			KHT – 312	Forest policy	2
5	Enggar Apriyanto	Forest protection	KHT – 210	Research methods	2
			KHT – 302	Agroforestry	2
			KHT – 303	Forest pests and diseases	1
			KHT – 309	Forest protection and health	2
			KHT – 410	Intensive silviculture	1
6	Gunggung Senoaji	Forest management, forest policy, forest and society	KHT – 105	Forest mensuration	2
			KHT – 205	Forest resource inventory	2
			KHT – 214	Forest resource management	2
			KHT – 306	Forest resource economics	2
			MKU – 300	Entrepreneurship	2
			KHT – 402	Social research methods	1
7	Wahyudi Arianto	Amorphophallus (titan arum), forest ecology, dendrology	MFE – 104	Biology	2
			KHT – 201	Dendrology	2
			KHT – 207	Field trip	2
			KHT – 214	Forest ecology	2
			KHT – 406	Forest ecosystems and climate change	1
			KHT – 408	Forest resource valuation	1
8	Guswarni Anwar	Forest mycorrhiza, silviculture, forest ecology, wetland restoration, mined land reclamation	KHT – 203	Silvics	2
			MFE – 200	Scientific writing	2
			KHT – 221	Silviculture	2
			MKU – 300	Entrepreneurship	2
			MFE – 300	Academic English	2
9	Deselina	Silviculture, tree ecophysiology, nursery, and composting	KHT – 202	Tree physiology	2
			KHT – 212	Seeds and nurseries	2
			KHT – 309	Forest protection and health	2
			KHT – 401	Plantation forest management	1
			KHT – 410	Intensive silviculture	1
10	Edi Suharto	Agroforestry, forest hydrology and climatology, and watershed management	KHT – 103	Forest soil science	2
			KHT – 104	Climatology	2
			KHT – 304	Forest hydrology	2
			KHT – 302	Agroforestry	2
			KHT – 311	Watershed management	2
			KHT – 406	Forest ecosystem and climate change	1
11	Nani Nuriyatin	Forest product technology	KHT – 101	Introduction to forestry	2
			KHT – 209	Basic properties of wood	2
			KHT – 305	Wood processing technology	2
			KHT – 404	Pulp and paper technology	1
			KHT – 411	Variation and improvement of wood quality	1
12	Putranto BAN	Plant ecophysiology, tree breeding	KHT – 202	Tree physiology	2
			KHT – 208	Forest statistics	2
			KHT – 212	Seeds and nurseries	2
			KHT – 301	Genetics and tree breeding	2
			KHT – 409	Experimental design	1
13	Yansen	Ecophysiology of tropical forest plants	KHT – 203	Silvics	3
			KHT – 207	Field trip	3

			KHT – 208	Forest statistics	2
			KHT – 312	Forest policy	2
			KHT – 408	Forest resource valuation	1
14	Erniwati	Tropical biodiversity conservation	KHT – 101	Introduction to forestry	2
			MFE – 200	Scientific writing	2
			KHT – 210	Research methods	2
			KHT – 213	Fundamentals of forest resource conservation	2
			KHT – 314	Non-timber forest products and environmental services	2
			KHT – 405	Wildlife management	1
15	Siswahyono	Forest management, social forestry, ecotourism	KHT – 214	Forest resource management	2
			KHT – 306	Forest resource economics	2
			KHT – 307	Forest extension	2
			MKP – 310	Forest harvesting	2
			KHT – 313	Social forestry	2
			KHT – 402	Social research methods	1
16	M. Fajrin Hidayat	Forest survey and mapping, GIS and drone for forestry	KHT – 103	Forest soil science	2
			KHT – 206	Forest survey and mapping	2
			KHT – 215	Geomatics and GIS for forestry	2
			KHT – 308	Forest planning	2
17	Saprinurdin	Forest ecosystem, silviculture	KHT – 206	Forest survey and mapping	2
			KHT – 215	Geomatics and GIS for forestry	2
			KHT – 308	Forest planning	2
			KHT – 404	Pulp and paper technology	1
			KHT – 409	Experimental design	1
18	Efratenta K Depari	Tropical silviculture	KHT – 301	Genetics and tree breeding	2
			KHT – 303	Forest pests and diseases	2
			KHT – 401	Plantation forest management	1
19	Agung Hasan Lukman	Biodiversity, ecosystem services, and climate change	KHT – 102	Plant morphology	2
			MFE – 104	Biology	2
			MFE – 105	Introduction to natural resources and the environment	2
			MFE – 200	Scientific writing	2
			KHT – 412	Quantitative ecology	1
20	Hefri Oktoyoki	Forestry Business, Social Forestry, ForestManagement	KHT – 313	Social forestry	2
			KHT – 421	Valuation of forest resources	1
			KHT – 210	Research methods	1

The infrastructure to support teaching activities related to the BFT Programme is as follows: 3 lecture rooms (270 m^2), administration room (70 m^2), meeting and examination rooms (60 m^2), seminar room (30 m^2), Joint Lecture Building I (GB I) Faculty of Agriculture (300 m^2), Training Building 2 Faculties (90 m^2), Faculty meeting room (300 m^2), Faculty reading room (400 m^2), Library (6000 m^2), Department BDP Building (3000 m^2), Soil Lab (3888 m^2), Forestry and Animal Husbandry Lab (1000 m^2), Agricultural Socio-Economic Building (1000 m^2), IHPT lab (1000 m^2), Faculty of Agriculture Building (3888 m^2), and Forestry and Marine Building (4000 m^2). Moreover, the BFT Programme office building consists of a head, secretary, and administration room. The laboratory has 4 separate practicum rooms, 4 research laboratory rooms for the Forestry Laboratory division, 1 herbarium room, and nurseries (300 m^2). The above infrastructure is adequate in supporting the learning process in the BFT Programme. In the future, facilities will be added for the seminar and discussion rooms.

2.2. Vision, Missions, and Goals of the Study Programme

The vision, mission, and goals of the BFT Programme are determined considering the long history of the establishment of the University of Bengkulu, internal factors of the Faculty of Agriculture, and external factors in the last five years. Changes in the world of forestry management and policy are relatively rapid. It is marked by forest management policies for the Forest Management Units (FMU/KPH), the importance of forest resources related to climate change mitigation and adaptation, and the withdrawal of authority in the forestry sector at the provincial level. According to the Mid-term National Development Planning in 2015-2019, there is a policy

of allocating a forest area of 12.7 million hectares for communities within and around forests nationwide, and there are about 900,000 hectares of tropical forest which spreads from the Bukit Barisan Mountains to the Indian Ocean coast surrounding by the settlement and community in Bengkulu Province. These forest policies and potentials are one of the external factors in the preparation of the vision and mission of the BFT Programme. Another external factor is the need for the development of forestry science which does not only lead to technical knowledge of forest management and forest products but also the role of forestry in empowering communities around the forest.

Vision

"Becoming a high-quality forestry education institution and contributing nationally and internationally with a specialization in community-based tropical forest management by 2025"

Missions

1. Providing high-quality education, research, and community service in the forestry sector to achieve community-based tropical forest management.
2. Implementing high-quality governance of the forestry study program.
3. Collaborating in the forestry sector at the national and/or international level to support the implementation of the Three Pillars of Higher Education.

Goals

1. To become an educational institution that produces quality graduates in the forestry sector.
2. To become an educational institution capable of conducting education, research and community service activities in the community-based tropical forestry sector.
3. To become a Forestry Study Program with good governance.
4. To become an educational institution capable of cooperating in the forestry sector at the national and/or international level to support the implementation of the Three Pillars of Higher Education.

2.3. History of the Study Programme

The BFT Programme was officially established on February 26, 1998 based on the Decree of the Director General of Higher Education No. 53/DIKTI/Kep/1998. It was the development of the previous establishment on January 7th, 1992 based on the Decree of the Director General of Higher Education No. 04/DIKTI/Kep/1992. To date, it is the only study programme under the Department of Forestry. This study program code has been rearranged according to the DIKTI regulations based on the Decree of the Director General of Higher Education No. 2934/D/T/2010 dated March 18, 2010.

The latest accreditation assessment of the BFT Programme by BAN-PT resulted in a B rating in 2021. At the beginning of the programme establishment, the initial concept of the BFT Programme was managing forest resources and environmental aspects as well as related policy changes in forestry sector. The study progamme in carrying out educational activities, both teaching and learning activities as well as research and community services, is mainly supported by the Laboratory of Forestry that has 4 (four) divisions based on field of interest and division, namely the Silviculture, Ecology and Forest Conservation, Forest Management, and Forest Products Technology. The four laboratory divisions work under the coordination of the Head of the Laboratory of Forestry.

CHAPTER III
CURRICULUM EVALUATION AND TRACER STUDY

3.1. The Evaluation Results of the Implemented Curriculum

This new curriculum has been prepared by involving stakeholders in evaluating and updating the curriculum considering internal and external interaction factors. The first factor is the need for the BFT Programme to participate in building scientific responsibilities that are useful for the community and the state, or at least at the Bengkulu Province level, and able to answer the problems faced by this nation related to forest and natural resource management. The second factor is the availability of human resources at the Faculty of Agriculture, especially teaching staff with suitable qualifications possessing a scientific background in natural resource science such as agriculture, forestry, animal husbandry, marine science and fisheries, agricultural economics, and agricultural technology. The last factor is the change in the direction of the curriculum, which is more towards a more measurable graduate profile. Therefore, the evaluation of the study program that is carried out will pay attention to the above factors, as well as internal factors such as vision and mission at the faculty and university level, and considering the UNIB research master plan, the results of input from users collected during lustrum II (2017), and from the results of the last meeting with alumni and the private sector or stakeholders in 2019.

Moreover, the BFT Programme discussed and received input from the Forestry Higher Education Communication Forum (FORETIKA), to improve the curriculum, including the structure and content of courses. It should be noted that the UNIB research master plan is one of the essential considerations in improving the vision and mission of the study program and course content that will be built based on the learning outcomes of graduates. In general, the research master plan has a scope of coastal areas and tropical forests, which is the central ideas for UNIB research (Research Master Plan of LPPM UNIB, 2016-2020).

Table 3.1. Curriculum evaluation and improvement strategies

No	Curriculum evaluation results	improvement strategies
1	The vision is still not yet synchronized with the vision of the faculty, and the university.	Synergize the vision of the University and the Faculty, and provide special characteristics related to the meaning of natural resource management and the university's research master plan
2	Very diverse interests or knowledge concentrations, while interests, student backgrounds, and user needs are fewer	Updating the curriculum structure by streamlining core courses and offering courses of interest or concentration of knowledge, which is a reflection of the interaction between user needs, human resources, and student backgrounds
4	Overlapping study materials in compulsory Study Program courses, as well as compulsory concentration and course content that is no longer following scientific developments	Choose the courses that will be removed, and replace them with new courses following research master plan and the graduate learning outcomes. Improvement of course content that reflects the up-to-date knowledge of community-based tropical forest management
5	The current curriculum has not provided characteristics that match the potential of Bengkulu Province in particular, and has not anticipated the Industrial Revolution 4.0.	Offering new courses or strengthening content in response to the Industrial Revolution 4.0 and implementing MBKM, as well as providing characteristics following research master plan and the potential of the Bengkulu Province in particular and Sumatra in general (as per KKNI/IQF Level 6)

3.2. Mechanism of Curriculum Evaluation Results

The curriculum is prepared by involving stakeholders in the process of evaluating and updating the curriculum. The curriculum that will be applied by the BFT Programme is based on its relevance to the vision, mission, and goals to be achieved by the study program and is the interaction of UNIB internal and external factors, including the development of knowledge related to changes in employment, and changes in global technology 4.0.

3.2.1. Field of studies specialization

Based on the analysis of the elements of learning outcomes and study materials, an analysis of specialization in the field of forestry science cluster is carried out which will be applied in academic processes in the BFT Programme. Study materials are synthesized into a building of science, technology, and the object being studied, which shows the characteristics of a particular science branch, or in other words, indicates the field of study or the scientific core of a study program. Study materials can be used as a basis for knowledge/fields of study to be developed, the knowledge that has potential or is needed by the community for the future. The specializations in the field of science from the analysis of the study materials described above that will be applied in the academic process in the BFT Programme are:

1. Forest resource management and information system
2. Silviculture
3. Processing and technology of forest products
4. Conservation of forest resources

3.2.2. Determination of the load and length of study with semester credit units (SKS)

In the curriculum development guide of the Directorate General of Higher Education, through the KBK paradigm, credits should be related to the competencies that must be achieved. The definition of credit is still related to time, only the estimated number of credits for a course or a planned learning experience is carried out by simultaneously analyzing several variables, namely: (a) the level of ability/competence to be achieved; (b) the level of breadth and depth of the study material studied; (c) learning methods/strategies to be applied; (d) the position (location of the semester) a learning activity is carried out; and (e) comparison to the overall study load in one semester. Therefore, in KBK which focuses more on the abilities/competencies of students, in principle, the understanding of credits must be understood as: the time students need to achieve certain competencies, through a form of learning and certain study materials.

The definition of 1 credit of courses carried out with lectures (lectures) is defined as three kinds of activities per week, namely:

a. Face-to-face activities for 50 minutes or 170 minutes of practicum or 4 hours of fieldwork.
b. Structured learning activities for 60 minutes.
c. Self-study activities for 60 minutes.

The Bachelor of Science in Forestry (S.Hut) who wants to be produced through the 2021 curriculum can achieve the targeted competence by collecting a minimum load of 144 credits, consisting of the main competency group (137 credits of compulsory subjects) and supporting competencies and other competencies (7 credits of guided elective courses and free). The study load which consists of lectures, practicum, thesis and field practice including KKN is designed to be completed within 8 semesters. In practice, this burden can be taken in less than 8 semesters and a maximum of 14 semesters.

3.2.3. Course establishment

The courses are formed based on the following considerations: (a) There is a close relationship between study materials which if studied in an integrated manner is expected to produce better results; (b) Consideration of scientific context, meaning that students will master a scientific meaning in a certain context; (c) The existence of appropriate learning methods that make competency achievement more effective and efficient and have a positive impact on students when a study material is studied in a comprehensive and integrated manner.

In the 2014 curriculum, the constituent courses consist of 3 types of courses, namely: the same courses as the 2008 curriculum, a combination of several 2008 curriculum courses, and new courses. In relation to the competencies to be achieved and study materials, the courses held in the 2014 curriculum of the Forestry Studies Program can be grouped as follows:

a. University compulsory courses. These courses consist of: (1) personality development courses that apply nationally, namely: Religious Education, and Citizenship Education; (2) community life courses, namely: Real Work Lectures, Basic Social and Cultural Studies, Entrepreneurship and Introduction to Communication; (3) special ability enhancement courses such as English, Computer Applications, and Indonesian
b. Faculty compulsory subjects. This type of course is a course that must be taken by all undergraduate students organized by the Faculty of Agriculture. This compulsory course consists of fundamental courses in the form of basic knowledge and skills.
c. Compulsory courses for the study program are in the form of basic forestry science courses.
d. Guided elective courses are courses that are directed to be taken by students who have the right to choose certain interests they want (end of semester 3). This group of courses is designed to be able to provide a special color that represents the scientific interest that you want to explore. These guided elective courses are offered by each division (Forest resource management and information system, Silviculture, Processing and technology of forest products, Conservation of forest resources)
e. Free choice courses, namely study materials and lessons that are taken at the freedom of students according to the interests, needs, and specificities needed in research (thesis). The selection can be assisted through the process of academic guidance with PA Lecturers and Thesis Supervisors. In addition, students are also given the freedom to design and achieve the competencies to be achieved according to the color and specialization of the desired study material.

3.2.4. Curriculum structure and courses

In the curriculum development guide of the Directorate General of Higher Education, theoretically there are two kinds of curriculum structure approaches, namely (1) serial approach; and (2) parallel approach. The serial approach is an approach that compiles courses based on their logic or scientific structure. In this serial approach, courses are arranged from the most basic (based on scientific logic) to the final semester which is an advanced course. Each course is interconnected, as indicated by the existence of pre-requisite courses (prerequisites). The courses presented in the first semester will be a requirement for the courses above. The grading of this course is also shown through the level of the course code as follows:

a. The course code consists of 3 letters and 3 numbers with one space separating
b. Three letters indicate the institution or department that offers the course. For example: the MWU code is offered by the University of Bengkulu, the MFE code is offered by the Faculty of Agriculture, and the KHT code is offered by the Forestry Studies Program.
c. For compulsory courses, the first digit of the three numbers indicates the year of offer, the second and third digits indicate the order in which the year was offered.
d. For elective courses, the first digit of the three numbers indicates the year of the offer, the second and third digits indicate the order of offers according to the offered study program.

The number of credits for each course offered is written in 3 digits with brackets for the last 2 digits and separated by one space. The first number shows the number of credits for the course, the second number is credit for theory, and the third number is practicum credit. For courses that only contain theory, the third digit has the number 0. While for courses that only contain practicum, the second digit has the number 0.

The prerequisites for a course are designed to a minimum by determining the courses that are needed as a condition to achieve the competence of the course. Prerequisites are classified into two, namely time prerequisites and competency prerequisites. The time requirement means in what year the course should be taken, which is reflected in the first- and second-digit code numbers for the course. Substance prerequisite means that a course is a prerequisite for a subsequent course. For substance prerequisites there are three groups, namely:

a. Prerequisite courses must have been passed when taking the courses in question.

b. Co-requisite, which means the prerequisite courses are taken at the same time or at a previous offer with the courses in question at the time of first taking.
c. Prerequisite courses are taken at the previous offer of the course in question.

3.3. Need assessment from Tracer Study Results

Input from users and alumni is an important part of developing the new curriculum. Input from stakeholders will be the material used to build a new curriculum, both in terms of courses and in terms of the content of the courses offered. Input from stakeholders will ensure that the curriculum that will be implemented in the future is sufficient to accommodate current knowledge and user needs. Input from users is carried out in two ways, namely through alumni gatherings at the second lustrum in 2017 and tracer studies in 2017 and 2019.

The tracer study conducted illustrates that most of the alumni work as ASN in the Ministry of Forestry and the Environment, the Ketahun Watershed Management Center, the Natural Resources Conservation Center, the Center for Environmental and Forestry Research and Development, National Parks, the Provincial Forestry and Environment Service. and Districts, Protection/Production/Conservation Forest Management Units, Department of Agriculture, Food Security, Forestry Extension Officers, Statistics Agency, ESDM and PUPR. Among the graduates, some work in the forestry industry, mining, academia, and NGOs. Some of the alumni have quite good careers in the above institutions. This illustrates that at least they are recognized as having fairly good competence after studying in the Forestry Study Program.

The results of the alumni meeting at the second lustrum in 2017 and the 2019 tracer study, many inputs were used to improve the existing curriculum. Good input is the desire to discuss more broadly watershed management, social forestry, and more broadly to discuss the capita-selecta of the forestry industry based on Wood Forest Products. Inputs on the content of lecture materials also came from alumni who were concerned with global warming and change, forest management systems, and conservation of biological resources.

Input from stakeholders is information that is then used to improve the curriculum by considering internal and external factors, flexibility, relevance, effectiveness, and its relationship to the vision and mission of the study program. Based on the above factors, the curriculum of the Forestry Studies Program is structured based on:

a. Principles of relevance, clarity of vision, mission and goals, and appropriateness of teaching staff
b. Stakeholder needs and is an operational approach to achieving the vision, and mission.
c. Graduate profile and graduate learning outcomes.

CHAPTER IV
BASIS FOR CURRICULUM DESIGN AND DEVELOPMENT

4.1 Philosophical Basis

The philosophical foundation is the rationale in curriculum development which becomes the basic framework that is built in a logical, analytical, and systematic learning process to shape the attitudes and behavior of the alumni of the study program. The curriculum itself is a continuous process that is built in response to the basic essence of social factors, state philosophy, basic psychological principles, knowledge accumulation, and educational goals set by the government.

The educational objectives stated in Law No. 20.2003 on the national education system are the philosophical basis for the direction of the UNIB Forestry Study Program curriculum. Philosophical education aims to educate the nation's life by building civilized and dignified Indonesian people, devoted to God Almighty, healthy, noble, healthy, capable, knowledgeable, creative, and independent. The purpose of education is also a learning process to become a democratic and responsible citizen.

In the design and development process, the Forestry Studies Program curriculum uses a rational approach and academic excellence (perennialism), personality and intellectual development (essentialism), reflective thinking in dealing with the problems of managing natural resources and the environment, and building a democratic spirit (experimentalism), building values that are democracy (Reconstructionism), and freedom in developing personality (Romantic naturalism) (Anonymous 2017).

4.2. Sociological Basis

The curriculum of the UNIB Forestry Study Program is based on the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 73 of 2013, concerning the Implementation of the KKNI for Higher Education. In this regard, the UNIB Forestry Study Program as a producer of educated human resources needs to improve the quality of graduates produced in accordance with the learning outcomes that have been formulated in the IQF qualification level.

Graduate Competency Standards (SKL) in the National Higher Education Standards (SN-Dikti) describe that learning outcomes in the KKNI consist of elements of attitude, general SKILLS, special SKILLS, and knowledge. Elements of attitude and general SKILLS have been formulated in detail and listed in the attachment of SN-Dikti, while elements of specific SKILLS and knowledge must be formulated by forums of similar study programs which are characteristics of graduates of study programs. This achievement is a psychological achievement that forms the basis for the main behavior of graduates of the study program. Learning outcomes are also a reflection of graduate qualifications that are built based on aspects of attitude, workability, mastery of knowledge as well as authority and responsibility. Therefore, the Forestry Study Program strives to improve the curriculum of the study program which broadly consists of four elements, namely learning outcomes, study materials that must be mastered, learning strategies to achieve, and achievement assessment systems. The Forestry Studies Program formulates a revised study program curriculum in 2020 by considering the quality of graduates and input from stakeholders (graduate users).

4.3. Psychological Basis

The development of this curriculum cannot be separated from the characteristics of students who are at the stage of adolescent development. The learning carried out is based on the concept of transformative pedagogic learning, meaning that the learning process carried out on students is carried out based on their developmental tasks to be used as a vehicle for developing competence as a Candidate for a Bachelor of Forestry. Changes in

learning from mastery of competence are directed at the ability and skills to utilize the competencies possessed to work as a forestry graduate.

This foundation provides direction that the curriculum in the study program is a learning system consisting of materials, and learning process activities, to achieve learning objects that are expected to encourage experience and development both in terms of individual character and social interaction in society. The curriculum developed must be able to accommodate the culture and principles of human resource management which are characterized by being honest, balanced, and fair in each of the elements that make up the ecosystem which is interrelated with one another. In addition, the curriculum must provide a culture of enlightenment to be able to accept noble values from outside, to be able to assess oneself to achieve perfection in individual and social interactions (Directorate General of Learning and Student Affairs, Kemenristekdikti. 2018).

4.4 Juridical Basis

The juridical basis refers to the set of policies that form the legal basis for the development, implementation, and evaluation of curriculum implementation. This includes a quality assurance system so that the objectives of the teaching and learning process can ensure the achievement of the study program objectives. The legal basis consists of various pieces of legislation from various levels. The laws and regulations that form the legal basis are as follows (Directorate General of Learning and Student Affairs, 2020):

1. Law no. 20 of 2003 concerning the National Education System
2. SK Mendiknas Number 232/U/2000, Number 045/U/2002, and SK Dikti Number 63/DIKTI/Kep/2007
3. PP No. 19 of 2005 concerning National Education Standards
4. Presidential Decree Number 8 of 2012 concerning KKNI
5. Article 85 of Bengkulu University Statute 2013
6. Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 49 of 2014 concerning National Standards for Higher Education
7. Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 154 of 2014 concerning the Clump of Science and Technology and the Degree of Higher Education Graduates.
8. Revised Decree of the Director General of Higher Education No. 163 of 2007 concerning Structuring and Codification of Study Programs at Higher Education and Permendikbud No. 154 of 2014 concerning Clusters of Science and Technology and College Graduate Degrees.
9. Record Regulation Number 25 of 2020 concerning Implementation of Academic Activities for the University of Bengkulu Vocational, Undergraduate, Professional, and Postgraduate Education Programs
10. Graduate profile as outlined by the Communication Forum for Indonesian Agricultural Universities (FKPT-PI)

4.5. Historical Basis

The forestry study program cannot be separated from the early development of the Faculty of Agriculture. At the beginning of the development of the Faculty of Agriculture, the core was the development of human resources who had the competence to manage natural resources, which characterized the province of Bengkulu at that time. So at that time, the recruitment of lecturers had diverse backgrounds from those with soil science, pests and diseases, socio-economic agriculture, agricultural cultivation, fisheries and marine, forestry, and agricultural technology. Therefore, the Faculty of Agriculture UNIB has a department with a variety of different disciplines.

In its development, changes in the landscape, economic growth, society, and industry based on agricultural products make the challenges faced by Bengkulu, in particular, and Sumatra in general, become more complex, so it is necessary to establish a Forestry study program with a curriculum that can answer these challenges, which realized with the establishment of the Forestry Study Program in 2014. This curriculum is built with a level of breadth and depth of level 6, where graduates can develop science and technology. Management of tropical

forest resources and community-based environments based on theories and problem-solving concepts with a multidisciplinary and multi-aspect approach.

Rapid developments in the outside world related to development, climate change and natural disasters, agricultural product-based industries, mining, and its environmental impacts, as well as the development of Bengkulu Development, in the form of Development of Special Economic Zones (SEZ) for the Port of Bai Bengkulu Island, encourage evaluation and curriculum changes. existing ones and developing a new curriculum can anticipate the dynamics that exist in the provinces of Bengkulu and Sumatra.

CHAPTER V
VISION, MISSIONS, GOALS, STRATEGY, AND UNIVERSITY VALUE

The vision, mission, and objectives of the Study Program are the result of an evaluation of the old vision, mission, and goals by considering the development of Bengkulu Province in particular, and Sumatra in general, internal, and external factors, and potential for comparative advantage. The vision, mission, and goals are then used as the basis for preparing the curriculum. Bengkulu Province is a province in Sumatra in which most of its areas are conservation areas, protected forests, and national parks, and has a relatively long coastal area (700 km). The development of Bengkulu Province mainly relies on agriculture, forestry, plantations (oil palm, rubber, and coffee), and the processing industry. The last two characters are also owned by the Provinces in Sumatra. Of course, the intersection between conservation and development requires that policymakers have a more comprehensive and wise insight into managing natural resources and the environment.

The vision, mission, goals, and objectives of the Forestry Study Program are formulated concerning and based on the study of the vision, mission, goals, and objectives of the Faculty of Agriculture (UPPS) conducted by the Forestry Study Program. The mechanism for preparing the Vision and Mission of the Forestry Study Program begins with a workshop with internal and external stakeholders to formulate the Study Program's vision and mission that is in line with the Faculty's Vision and Mission. Internal stakeholders include lecturers, departments, and education staff, while external stakeholders consist of representatives from alumni, relevant agencies, forestry practitioners, environmental managers, mining, plantations, and agriculture. The results of the workshop were then formulated by the task force combined with the vision and mission of the faculty. predictions of future global forestry developments, adjusted to the capacity of the resources in the Study Program, as well as the forestry potential of the Bengkulu Province. The results of the formulation of the Vision and Mission are then discussed, improved, and re-workshopped by involving internal stakeholders including the faculty leadership. The results of the final formulation are adopted and used to determine the goals and objectives of the Study Program and strategies for achieving them.

5.1. The Formulation of Study Program Vision

The preparation of the vision and mission of the study program (PS) always refers to the vision and mission of the Faculty of Agriculture and the University. The vision of the Faculty of Agriculture, University of Bengkulu is: "By 2025 the Faculty of Agriculture will become an internationally reputable institution in the development of tropical agriculture and coastal ecosystem management" while the vision of the University of Bengkulu is "to become a world-class university by 2025". Therefore, the formulation of the vision and mission of the forestry study program is part of a long process related to the establishment of Bengkulu University, internal factors of the Faculty of Agriculture, and external factors that have occurred in the last 5 years.

The vision, mission, goals, and objectives of the forestry study program are part of a long process related to the establishment of Bengkulu University, internal factors of the Faculty of Agriculture, and external factors that have occurred in the last 5 years. Changes in the world of forestry management and policy are relatively fast. This change is marked by forest management policies in the form of Forest Management Units (KPH), the importance of forest resources related to climate change mitigation and adaptation, and the withdrawal of authority in the forestry sector at the provincial level. Nationally (RPJMN 2015-2019) there is a policy of allocating a forest area of 12.7 million hectares for communities in and around forests, and in Bengkulu Province, there are about 900,000 hectares of tropical forests where and around the forest there are communities. These forest policies and potentials are one of the external factors in the preparation of the vision and mission of the Bengkulu University forestry study program. Another external factor is the demand for the development of forestry science which does not only lead to technical knowledge of forest management and forest products but also leads to the role of forestry in empowering communities around the forest.

The vision of the Forestry Study Program is prepared by taking into account the 5 characteristics of SMART. The first trait is Specific (S). Specific has its unique meaning, which is expected to be able to solve problems related to the management of forest natural resources and the environment in tropical and coastal forest areas. This particularity is further elaborated in the curriculum. The second criterion is Measurable (measured). This trait refers to the vision that must be measurable, with learning criteria and indicators and supporting factors that can be monitored and evaluated, regularly and continuously. The third trait is Achievable (A) The trait explains that the vision that is built can be achieved within a certain period. The fourth trait is Rational (R). This trait shows that the vision is built with reasonable considerations with available, measurable, and achievable resources. The last property is time-specific (T). This trait refers to the time when the vision can be achieved based on criteria and indicators.

The vision of the Bengkulu University Forestry Study Program is: "By 2025, it will become a quality Forestry Science Education Institute and contribute nationally and internationally with a specialization in community-based tropical forest management"

"Quality Forestry Educational Institutions" referred to here are higher education institutions that have professional teaching staff in the forestry sector and institutions that produce graduates in the forestry sector who can develop knowledge, technology, and art in the field of forestry management, particularly community-based tropical forest management. . In addition, professional staff and graduates of the forestry study program are expected to be able to solve the problems of science, technology, and art in forest resource management. What is meant by "contributing nationally and internationally" is that forestry study programs can align themselves in the field of forest resource management both at the national and or international levels, especially community-based tropical forest management; both professional teaching staff and graduates.

5.2. The Formulation of Study Program Missions

Its missions are as follows: 1.) To provide quality education, research, and community service in the forestry sector to achieve community-based tropical forest management; 2). Realizing quality Forestry Study Program governance; 3) Organizing cooperation in the forestry sector at the national and/or international level to support the implementation of the Tridharma of Higher Education.

The Study Program was established to participate in developing the nation in the field of forest resource management. In the future, the problems of managing forestry resources will color local, regional, and national development policies. In Sumatra, the development will still be dominated by the use of forestry natural resources. Therefore the Forestry Study Program is very relevant and the strategy is related to the provision of human resources and participating in solving development problems.

The Study Program is equipped with a new curriculum based on the vision, mission, and academic goals. In this regard, determining the profile of graduates, learning outcomes, and the existence of semester learning plans are very important. In this regard, external stakeholders such as alumni, users from various offices, practitioners, and internal stakeholders have been involved in curriculum preparation, evaluation, and input. External stakeholder involvement was carried out in alumni gatherings and meetings to discuss the 2019 curriculum.

Extra-curricular activities are a relatively easy part to carry out because Forestry PS students are regular students, so time is not a barrier. The extra-curricular activities of students in the study program are accommodated by several intra-campus and off-campus student institutions. For intra-campus activities, among others, in the form of university student senates, student executive bodies (BEM), UKM, Faculty BEM, and others. Student institutions outside the campus are also not limited, so students are free to be active in student organizations GMNI, HMI, PMII, and others. Student development is generally aimed at the fields of reasoning, welfare, and fostering interests and talents. The field of reasoning is pursued through research activities, LKTI, LKIP, Student Creative Program (PKM), entrepreneurship internships, research on student alternative works, and

others. The development of interests and talents is accommodated in the Student Activity Unit (UKM) in the fields of arts, sports, writing, and others. To spur achievement, the students of the study program held art and sports competitions at the faculty level which were then tiered up to the university level. To develop the entrepreneurial spirit of students, the faculty of agriculture developed a University Farm, which consists of several production units including a forest nursery unit, and an organic plaza. The forest nursery unit is handled by the forestry study program, the activities carried out include the production of forest plant seeds. In the long term, the study program is building an educational forest in Kemumu, North Bengkulu, and preparing to form a forestry faculty

Extra-curricular activities can also be carried out by including activities in lectures and practicum activities in the form of field study activities. The purpose of this field study is to provide a real picture or hands-on experience for students about the dynamics of human relations and the dynamics of forest ecosystems/biodiversity and to bring the theory and reality of forest management closer to the field.

The principle of justice is also upheld in the implementation of education and administration at the Faculty of Agriculture. The principle of justice is reflected in the Main Duties and Functions (TUPOKSI) of each work unit within the Faculty of Agriculture. Duties and functions are described in the Decree of the Dean of the Faculty of Agriculture Number 560/J30.1.23/HK/2003 concerning the duties of the Dean, Assistant Dean, Chair, and Secretary of the Department. The main tasks of the manager of the Forestry Study Program are:

a. Plan and organize responsibility for teaching and learning activities.
b. Develop and revise curriculum regularly.
c. Evaluating the suitability of learning materials with the existing curriculum.
d. Organizing the student thesis process
e. Responsible for program development and preparing external evaluations.
f. Report and be responsible for the implementation of the Study Program program.
g. Assist the Faculty of Agriculture in designing and managing the financial administration of the Forestry Study Program.

The process of organizing a forestry study program cannot be separated from the prevailing noble values that are used as the basis for directing, inspiring, and creating motivation to achieve the vision, mission, and objectives of the study program. Five basic principles guide the implementation of the civil service system at the study program level, namely 1) credible, 2) transparent, 3) accountable, 4) responsible, and 5) fair.

In the implementation of cooperation, in the field of education and teaching, the responsibility lies with the management of the Forestry Study Program. For the field of research and community service, the Forestry Study Program and other study programs around the Faculty of Agriculture, UNIB coordinate with each other to establish cooperation and partnerships with other institutions. Maintaining cooperation with external parties for sustainability is very important. Therefore, the selection of the team involved in the collaboration takes into account the competence of the lecturers, as well as the students who will be involved. So far, the Forestry Study Program has collaborated a lot with several government agencies, both central (Ministry of Forestry, BPDASHL Ketahun, BKSDA, TNKS, BP2SDM, KPH, TNGL), regional (North Bengkulu Regency on KHDTK, DLHK Bengkulu Province), and Private (PT. MHP, WKS, RAPP, REKI, TOBA PULP LESTARI). Cooperation is realized in the form of various studies and organizing discussion forums. The result of this collaboration is that in addition to increasing the number of research studies, the Forestry Study Program can also update the collection of data and information so that it becomes strengthen the implementation of the three pillars of higher education.

5.3. Study Program Objectives

For Forestry PS students, students are required to have an academic manual. Specifically, the Study Program academic guidebook contains course structure, academic rules, arrangements for conducting lectures and exams, assessment systems and criteria, and procedures for conducting research, seminars, and thesis exams.

In achieving the learning objectives, namely in the form of graduate profiles with CPL and CP/CPMK, the Forestry Study Program emphasizes the need for a conducive academic atmosphere, through lectures that are two-way and emphasize interactive processes. This process focuses on scientific autonomy and academic freedom by providing the widest opportunities to access the latest scientific information. One example is a partnership involving lecturers and students that have been carried out in a structured and regular manner. This aspect is reflected in the guidance in the completion of the thesis (starting from the proposal, during research, and writing of research results to mentoring after the exam). The emphasis of this aspect is on building integration between research topics and lecturers' PKM in student lectures and research. The participation of the academic community (lecturers and students) in academic activities that have been carried out are proposal seminars or research seminars. This activity is an obligation for lecturers and students based on the rules of the Study Program.

The formulation of the objectives of the Forestry Study Program includes: 1) To become an educational institution that produces quality graduates in the forestry sector; 2) To become an educational institution capable of conducting education, research, and community service activities in the community-based tropical forestry sector; 3) To become a Forestry Study Program with good governance; 4) To become an educational institution capable of cooperating in the forestry sector at the national and or international level to support the implementation of the tri dharma of higher education.

5.4. The Formulation of Study Program Strategy

With the Vision, Mission, Goals, and Objectives, every activity and organization will be more focused and clear. Vision, strategy, and planning (including budget) have a complementary relationship. Vision sets out what the future will be like, providing an attractive and compelling picture of the future. The achievement strategy is carried out in several stages starting with planning. Planning is built by involving internal parties to determine strategies, programs, and indicators up to 2025 through SWOT analysis. The second stage is to conduct a performance evaluation which is carried out in the form of an annual self-evaluation report for the Study Program, including the learning evaluation conducted by the Faculty UPM and LPMPP. The third stage is to control the results and improve, by utilizing the data from the evaluation results. In achieving all the resources are directed to achieving the target indicators and programs that have been determined.

The complete document is in the Bengkulu University Forestry Department Strategic Plan 2016-2025. Achieving this strategic plan requires several steps.

Period I: STRENGTHENING (2016 – 2018).

This period is the stage of consolidation of all the potential that has been owned by the Department of Forestry, Bengkulu University. This step needs to be taken to identify, map, explore, and organize the potential that has been owned so that it can be used as a solid foundation for the implementation of the following periods. The general goal to be achieved at this stage is the creation of the Forestry Study Program as an institution with a very good reputation which is equivalent to the leading Forestry Studies Program in the Sumatra region.

Period II: DEVELOPMENT (Years 2018 – 2021).

This period focuses on the development of superior fields, both in the fields of institutional governance, academics, student affairs, human resources, quality scientific works following established basic scientific patterns, as well as supporting facilities and infrastructure. The general target to be achieved is the realization of the Forestry Study Program as an institution with a very good reputation which is equivalent to the leading Forestry Studies Program in Indonesia.

Period III: INTERNATIONALIZATION (Years 2022 – 2025).

This period is a consolidation of the results of the development of various fields that have been achieved in the previous period to achieve a national and international reputation. The target to be achieved is to obtain

international accreditation from AUN (ASEAN UNIVERSITY NETWORK) or other international accreditation institutions.

Targets and Strategies for Achieving the Vision, Mission, and Objectives of the Study Program

1. Increase the level of education and certification of lecturers in the Forestry Study Program to 80% with doctoral education in 2025.

The strategy to achieve the target of increasing the education level of lecturers is carried out by encouraging and providing full support so that lecturers in the Forestry Study Program can continue their education to the doctoral level at home or abroad. The goal is to improve the quality of human resources from the initial condition of 45% doctoral lecturers and 85% certified educators in 2015 to a minimum of 80% doctoral lecturers and 100% certified educators in 2025.

2. Upgrading the scientific field of the lecturers of the Forestry Study Program

The strategy that has been and will continue to be taken is to provide opportunities for lecturers to participate in various scientific updating programs (post-doc/training/workshops/workshops on their knowledge) while maintaining the continuity of the teaching and learning process in the Department of Forestry.

3. Improving the quality and quantity of inputs for the Forestry Study Program (passing grade students will be at least 30% in 2025)

The strategy used to improve the quality and quantity of Forestry PS inputs is through increasing the implementation of forestry management in the local, regional, and national environment in various forms of action, research involvement, and community service involving the community, alumni, and students so that Forestry PS UNIB is widely known and contributes positively to national development. The forestry study program also always participates in the socialization organized by the Faculty of Agriculture, Bengkulu University, through various scientific activities such as seminars and public lectures. Technological advancements are also used by study programs to carry out promotions, by displaying profiles of forestry study programs on the Bengkulu University website, the Bengkulu University Faculty of Agriculture website, social networks (blogs, Facebook, alumni mailing list, etc.) about study programs, students, or alumni. From the initial condition, the quality of student input passing grades is 25.5% to 30% in 2025.

4. Improving the quality of expertise of forestry students

Strategies carried out by the study program to improve the quality of expertise of Forestry Study Program students include fostering student activities carried out by the forestry student association (HIMASILVA), Silva Indonesia, WARISAN, Mangrove Care Students, Bengkulu Province Rare Puspa Care Community (KPPL), Nature Lovers Students (MAPALA) and motivating students to be active in extra-curricular activities. To introduce the business world to students, each student must do General Practice or Internship with companies engaged in forestry, either in tropical forest companies in Sumatra or Sustainable Forest Management Companies, Forest Management Units (KPH), and Perhutani in Java.

5. Increasing the reference of learning resources.

Strategies to add learning resources, among others, by gradually increasing the collection of materials and tools related to learning activities, such as the preparation of geographic information system software (mapping), hardware preparation (hardware), reference books, textbooks, dictation, and so on. Each lecturer is required to

make/convert a Mangajar Learning Activity Plan (RKBM) into a Semester Learning Plan (RPS) which includes a list of references needed in learning activities. The Forestry Study Program, through Bengkulu University, has prepared free internet facilities for all students and lecturers (with their accounts) to be able to enrich online references.

6. Improving materials and tools for practical implementation

The strategy used is through the addition of materials and tools needed in the implementation of the practicum, to improve students' abilities in understanding their knowledge. Each practicum caregiver is required to make/improve the practicum manual into a practicum module, which includes the materials and tools needed. Some lecturers seek to procure tools from their collaborative research activities with domestic and foreign partners.

7. Improving the quality and quantity of Research

The strategy taken is to encourage lecturers to be actively involved in research activities that are routinely held by the Directorate of Higher Education, universities, faculties, or other institutions that offer research activities. The department also seeks to collaborate with other parties, such as local governments (Regional Research and Development Agency, Provincial Environment and Forestry Service, Regional Research Council, and so on), the Ministry of Forestry (Natural Resources Conservation Center, Forest Area Consolidation Center and Watershed Management Centers and Protected Forests), foreign and/or domestic universities, State/Private-Owned Enterprises and other institutions. Internally, the department holds discussions and or exposures from lecturers who have conducted research in a weekly meeting place, increasing accessibility to international and national scientific journals, adding to the collection of books/journals nationally and internationally, and training related to the field. study.

8. Improving the Quality and Quantity of Scientific Work Publications

This strategy is carried out by giving rewards to all lecturers for publishing research results and or scientific studies in the form of scientific works, either through journals (national accredited journals and international accredited journals), scientific seminars, and or other scientific meetings both at international and national levels. The Forestry Study Program also supports the improvement of the institutional quality of the Publishing Agency of the Faculty of Agriculture (BP Faculty of Agriculture, Bengkulu University) by participating in publishing several book titles, such as books on silviculture, ecology, ecology, and conservation, Rafflesia, Introduction to environmental science, and English for agricultural sciences by lecturers. -Lecturer of Forestry Study Program. In addition, the study program also supports providing incentives for lecturers and students who write scientific articles in accredited national and international journals, textbooks, and textbooks, and increasing accessibility in national and international journals. Providing incentives for lecturers who are actively writing scientific articles is coordinated directly by the university.

9. Increasing community service

The strategy taken to improve community service is to encourage the academic community to participate in routine service activities organized by the Directorate of Higher Education, universities, and/or faculties, both individually and in groups of lecturers by involving the role of students, such as competitive lecturer service programs and lectures. Student Real Work. The forestry department also always tries to collaborate with other parties such as the Bengkulu Province Forestry and Environment Service, the Ministry of Forestry (Natural

Resources Conservation Center, Forest Area Consolidation Center and Watershed Management Center and Protected Forest), Regency/City Governments, Agency for State/Private Owned Enterprises and other institutions. The cooperation formed can be through the involvement of individual lecturers, groups of lecturers, or institutions.

To achieve the vision, mission, and educational goals of the Forestry Study Program, a strategic plan is drawn up based on the results of the SWOT with the following principles: 1) Specific, the strategic plan is prepared with the main subject being community-based management and utilization of tropical rain forest resources; 2) Measurable, the formulated vision can be measured both in terms of scope and time dimensions. To meet the achievement standards, monitoring and evaluation are carried out regularly and continuously; 3) Achievable, a vision that can be reached and measurable achievements; 4) Rational, a rational vision because it is based on available resources that are supportive, measurable, and can be realized; 5) Time specific, for the achievement of the vision by considering the availability of resources and indicators that have been achieved at this time and the time of achievement in the future.

5.5. The Formulation of University's Value

Bengkulu University's 2019-2023 Business Strategic Plan (RSB) is based on UNIB's vision to become a world-class university by 2025 which prioritizes uniqueness that focuses on Tropical Rain Forest and Coastal Area Management. This uniqueness is one of UNIB's advantages in improving the standard of living of people in tropical forest areas and coastal areas. As a local strength that is favored to be developed in the future, the Study Program puts it in local wisdom courses that are following the forestry sector that focuses on community-based tropical rain forest natural resource management. This comparative advantage is expressed in research activities and community service.

Changes in the world of forestry management and policy are relatively fast. This change is marked by forest management policies in the form of Forest Management Units (KPH), the importance of forest resources related to climate change mitigation and adaptation, and the withdrawal of authority in the forestry sector at the provincial level. Nationally (RPJMN 2015-2019) there is a policy of allocating a forest area of 12.7 million hectares for communities in and around forests, and in Bengkulu Province, there are about 900,000 hectares of tropical forest which spreads from the Bukit Barisan Mountains to the Indian Ocean coast, where in and around the forest there are people. The forest policy and potential are one of the external factors in the preparation of the Bengkulu University forestry study program curriculum. Another external factor is the demand for the development of forestry science which does not only lead to technical knowledge of forest management and forest products but also leads to the role of forestry in empowering communities around the forest.

Considering the above, the Forestry Study Program internalizes the local potential and strengths of UNIB RSB into the curriculum structure, among others in the following subjects: Social forestry, Agroforestry, Non-timber forest products, and environmental services, wildlife management, forest ecosystems, and climate change, forest management DAS, Internship in sustainable forest management, Geomatics and forestry geographic information system.

CHAPTER VI
THE FORMULATION OF GRADUATE COMPETENCE STANDARD

6.1. Graduate Profile

The Indonesian National Qualifications Framework, hereinafter abbreviated as KKNI, is a competency qualification rating framework that can juxtapose, equalize, and integrate the fields of education and the field of job training and work experience to provide recognition of work competencies under the work structure in various sectors. The Indonesian National Qualifications Framework (KKNI) maps out the profile and competence of graduates based on each level. Based on KKNI level 6, the Forestry Study Program aims to produce graduates with a Bachelor of Forestry (S.Hut) degree in forestry who have competencies under the graduate profile. Level 6 refers to the graduate's ability to describe and develop science and technology for community-based tropical environmental and forest resource management based on theories and problem-solving concepts in a multidisciplinary approach. The profiles of graduates produced by PS Forestry are expected to be:

1. Manager in the forestry sector
   A forestry graduate who can manage forest resources and develop networking with stakeholders, starting from the planning, governance, utilization, and ability to evaluate the management process, and sticking to the principle of sustainable tropical forest functions.

2. Ecotechnopreneur
   Forestry undergraduates who have an entrepreneurial spirit in the forestry sector collaborate with stakeholders, as actors in the process of evaluating forest resources to obtain the economic benefits of tropical forests.

3. Educators and extension workers in the forestry sector
   Forestry graduates who can communicate ideas or knowledge in the forestry sector effectively, as actors in the process of community empowerment and the ability to apply values and norms in community building have a high social responsibility reflected through their active role in solving community problems, especially in terms of managing natural resources and tropical forest environment.

4. Young researcher in forestry
   A forestry graduate who can think creatively, innovatively, and productively to make designs and technology in solving issues in the management and utilization of timber, non-timber forest products, and tropical forest environmental services

The graduate profile is also a reflection of the learning outcomes of the study program. Therefore, the graduate profile must have competence. The expected competencies consist of general competencies, study program competencies, and interest competencies. General competencies consist of the learning outcomes of graduates having the following characteristics:

1. Be devoted to God Almighty, uphold human values in carrying out their duties, and always have principles on forestry ethics.
2. Have an attitude of honest, fair behavior and respect for the values of local wisdom

Study program competence is a characteristic of learning outcomes that characterize the study program. The competencies that characterize these achievements are grouped as main competencies, which means that all graduates of the study program regardless of the background of the graduate interest will have the same competence from the results of the learning process in this study program. Specific competencies for silviculture, ecology and conservation, management, and forest product technology are learning outcomes that will be achieved for students who are interested in forest cultivation, forest ecosystem ecology and conservation,

sustainable tropical forest management, and forest product management technology. Specific competencies are competencies that are built to characterize the learning outcomes of graduates for concentrations in forest cultivation, ecology and forest ecosystem conservation, sustainable tropical forest management, and forest product management. The details of the competencies of each of these science concentrations can be seen in the table below.

6.2. Graduate Ability

Learning outcomes are a reflection of the ability of graduates of the Bachelor of Forestry obtained from the learning process organized by the Forestry Study Program. Learning outcomes are also a reflection of graduate qualifications that are built based on aspects of attitude, workability, mastery of knowledge as well as authority and responsibility. Learning outcomes are an important part and form the basis for the formation of the curriculum and the courses offered by the Forestry Studies Program. The process of preparing the CPL refers to takes into account and is based on Law 12/2012 concerning Higher Education, and Permendikbud 49/2015 concerning National Standards for Higher Education (SN DIKTI) (Dirjen Dikti, Ministry of Education and Culture 2014). Therefore, the process that has been taken in the preparation of the CPL has gone through several stages which include: (1) Formation of a curriculum preparation team; (2) Meeting with stakeholders and alumni to get input; and (2) Workshop/discussion on curriculum held at the faculty level.

Learning outcomes are also the result of reflection on the vision and mission of the study program, input from stakeholders and alumni, the uniqueness of the socio-economic, ecological, forestry, and environmental conditions of Bengkulu in particular, and Sumatra in general, and consideration of contemporary global issues related to forestry and the environment. . While the breadth and depth of knowledge This curriculum is built with a level of breadth and depth of level 6, where graduates can implement science and technology in tropical forest and environmental management and develop them based on theories and problem-solving concepts in a multidisciplinary and multi-aspected approach.

Concerning the preparation of the CPL, we consider several things, in addition to the things above. In preparing the CPL, we refer to the organizers of the study program, as well as professional organizations. In this regard, we refer to the formulation of the financial curriculum as a result of the Forestry Higher Education Communication Forum (FOReTIKA) workshop and input from institutions: the Extension and Human Resources Development Agency of the Ministry of Environment and Forestry, the Forestry Engineering Vocational Agency, the Indonesian Engineers Association, and the Indonesian Forest Entrepreneurs Association. Discussions and inputs from the above institutions are used to improve the curriculum including the structure and content of the courses. It should be noted that the UNIB research master plan is one of the important considerations in improving the vision and mission of the study program and course content that will be built based on the learning outcomes of graduates.

The CPL of the Forestry study program is based on 4 main elements, namely:

1. Attitude
   The attitude element contains a meaning that is following the details of the attitude element that has been determined by SN DIkTI and consists of 10 elements of attitude.
2. Knowledge mastery
   The element of mastery of knowledge is the mastery of concepts, theories, and methods from the forestry and environmental fields which are systematically obtained through the process of reasoning in the learning process, experience, and research/student service.
3. General skills
   Elements of general skills are abilities that are mandatory for every graduate that reflects the equality of abilities according to the level of the study program and with SN DIKTI
4. Special skills

Elements of special skills reflect the employability that graduates are expected to possess and the specificity of community-based tropical rainforest management.

The details of each learning achievement can be seen in tables 6.1, 6.2, 6.3, and 6.4 as follows:

Table 6.1. Learning Outcomes Graduates (CPL) in element of attitude (S)

Code	CPL Description
S1	Fear of God Almighty and able to show a religious attitude;
S2	Upholding human values in carrying out duties based on religion, morals, and ethics;
S3	Internalize academic values, norms, and ethics;
S4	To act as citizens who are proud and love their homeland, have nationalism and a sense of responsibility to the state and nation;
S5	Appreciate the diversity of cultures, views, religions, and beliefs, as well as the opinions or original findings of others;
S6	Contribute to improving the quality of life in society, nation, state, and the progress of civilization based on Pancasila;
S7	Cooperate and have social sensitivity and concern for society and the environment;
S8	Obey the law and discipline in the life of society and the state;
S9	Internalize the spirit of independence, struggle, and entrepreneurship;
S10	Demonstrate a responsible attitude towards work in their area of expertise independently.

Table 6.2. Learning Outcomes Graduates (CPL) in element of knowledge (P)

Code	CPL Description
P1	Mastering the theory and principles of silvicultural processes, ecology, ecosystems, succession and dynamics of tropical forests
P2	Mastering theories and principles regarding the interaction of ecosystem components (biophysical), social, economic, cultural, as well as harmony, and justice in community-based tropical forest management
P3	Mastering the theories, concepts and methods of tropical forest management, and the impact of development on forests, social/cultural/economic forestry, global warming and climate change
P4	Mastering theories and concepts of the relationship between tropical forest management and social/cultural/economic forestry in sustainable development
P5	Mastering theories and principles regarding forest resource conservation and the impact of development on forest resource sustainability
P6	Mastering the theories, concepts and methods of assessing forest conditions based on ecological, economic, social and cultural principles
P7	Able to think critically and apply and develop knowledge related to tropical forest management, conservation of forest resources and the environment

Table 6.3. Learning Outcomes Graduates (CPL) in element of General Skill (KU)

Code	CPL Description
KU1	Able to develop logical, critical, systematic, and innovative thinking in the context of developing and implementing community-based forest management science and technology by paying attention to and applying humanities values according to their field of expertise
KU2	Able to carry out academic validation or studies according to their field of expertise in solving relevant community-based forest management problems through developing their knowledge and expertise
KU3	Able to examine the implications of developing or implementing science and technology for community-based tropical forest management that pays attention to and applies humanities values according to their expertise based on scientific principles, procedures and ethics in order to produce solutions, ideas, designs or artistic criticism, as well as compose a scientific description of the results of the study in the form of a thesis or disseminated final project report
KU4	Able to make appropriate decisions in the context of solving community-based science and technology development problems in tropical forest management based on analytical or experimental studies of information and data
KU5	Able to document, store, secure, and rediscover research data in order to ensure validity and prevent plagiarism
KU6	Able to internalize academic leadership in managing, developing and fostering resources and organizations under their responsibility
KU7	Able to develop, manage and maintain working networks with internal parties and institutions
KU8	Able to develop and identify the scientific field that is the object of study of his expertise and position it into a research that is developed through an interdisciplinary, multidisciplinary, or trans-disciplinary approach

Table 6.4. Learning Outcomes Graduates (CPL) in element of Specific Skill (KK)

Code	CPL Description
KK1	Able to describe the characteristics, types of tropical forest ecosystems as well as the potential and constraints in the utilization of forest resources
KK2	Able to identify and describe the benefits of forest resources and carry out an assessment of forest benefits based on ecological, economic, social and cultural concepts
KK3	Able to present a database of forestry resources in an integrated manner using geomatics technology and Geographic Information Systems
KK4	Able to prepare an indicative plan for forest restoration based on the ecological, economic, social and cultural conditions of the community in a watershed ecosystem unit or watershed area
KK5	Able to optimally organize forest structures for ecological, economic, social and cultural benefits and implement sustainable and integrated agroforestry systems
KK6	Able to diagnose forest conditions and develop alternative management based on ecological, economic, social and cultural sustainability principles
KK7	Able to disseminate techniques and concepts of forest management based on ecological, economic, social and cultural sustainability principles
KK8	Able to integrate forest and environmental resource management with climate dynamics as well as mitigation and adaptation to their impacts
KK9	Able to process various forest products using renewable and environmentally friendly science and technology

Table 6.5. Graduate profile and grouping of graduate learning outcomes

No	Graduate profile	Learning outcomes			
		Attitude	Knowledge	General skill	Specific skill
1	Manager in forestry field	S1 – S10	P2 – P6	KU1 – KU8	KK2 – KK8
2	Ecotechnopreneur	S1 – S10	P1 – P6	KU1 – KU8	KK1 – KK9
3	Educators and extension workers in the forestry sector	S1 – S10	P1 – P6	KU1 – KU8	KK1 – KK9
4	Young researcher in forestry	S1 – S10	P1 – P7	KU1 – KU8	KK1 – KK9

Based on the Regulation of the Minister of Education and Culture of the Republic of Indonesia No. 49 of 2014, concerning the National Standards for Higher Education, especially regarding the Learning Process, which focuses on student-centered learning. An example of student-centered learning is the evaluation of lectures in the form of papers or written works for certain issues. Another example is that students are encouraged to write in the mass media. The examples above will reveal the abilities, initiatives, and competencies of each student. The nine learning characteristics have been fulfilled and are included in the four elements of CPL and internally can be achieved through the learning process. Table 6.5 above is the profile of graduates and the CPL they charge.

The nine characteristics are spread over 10 pillars of attitude, 6 pillars of knowledge mastery, 8 general skills, and 7 special skills. The distribution of each CPL pillar in the graduate profile is intended to ensure that graduates have 9 learning characteristics. Interactive means that CPL is a process of interaction between lecturers and students. This can be achieved by the Study Program because the nature of the learning process requires interaction between students, lecturers, and other parties, starting from lectures, proposal seminars, results seminars, and publications. Holistic means that CPL encourages a comprehensive perspective by considering local wisdom and advantages. One example of this character is CPL P2. CPL P2 states that students must master concepts and principles, and develop, through research and innovation, biophysical, social, social, economic, and cultural interactions, as well as harmony, and justice in the management of tropical rain forests and the environment. Integrative refers to that CPL goes through the process of integrating CPL as a whole with a multidisciplinary approach. This trait can also be reflected by CPL P2.

Scientific means that CPL is achieved through and based on scientific processes and methods, and upholds national and religious values. Examples of this aspect are CPL S1, S8, and KU 3. Each of the CPL reads that graduates have the following characteristics: Fear of God Almighty and ability to demonstrate religious attitudes (S1); Obey the law and discipline in social and state life (S8); Able to compile and develop ideas, thoughts, and scientific arguments responsibly and based on academic ethics, and communicate them through the media to the academic community and the wider community (KU3).

Contextual means that CPL is a learning process that is built based on contemporary themes and the ability to handle problems in the field of competence. One that can be exemplified from this trait is CPL KU 4 which states that Able to make decisions in the context of solving problems in the development of science and technology for managing forest and environmental resources based on analytical or experimental studies of information and data.

Thematically refers that CPL is built based on the characteristics of the Study Program with a multidisciplinary approach. One example of thematic nature is the CPL KK2 which states that graduates can master, develop research methods, and can conduct research through a multidisciplinary approach, and data presentation, evaluation, and comprehensive solutions related to community-based tropical forest natural resource management, especially those related to watershed management and coastal area. Its effectiveness is reflected in the Forestry Study Program, the curriculum is built in 8 semesters, of which 7 semesters are lectures and the last semester is a test.

CHAPTER VII
THE DETERMINATION OF STUDY MATERIALS

7.1. The Analysis of Learning Outcome Components

Determination of study materials is an important step in the process of forming courses, of course, this process takes into account the profile of the graduates to be desired and the learning outcomes that have been determined. The study material determined by the study program is taken from the scientific map that characterizes the Forestry Study Program or from the science and technology repertoire that will be built by the study program itself. Study materials can be added to fields/branches of knowledge that are considered necessary for graduates to anticipate the development of science in the future. Study materials can also be selected based on an analysis of the needs of the world of work/profession that graduates will engage in in the future. Based on this analysis, the breadth and depth of knowledge are determined by reducing the knowledge, material, or subject matter of learning outcomes. The body of knowledge in Forestry Science is presented in Table 7.1.

Table 7.1. UNIB Forestry Study Program Study Materials

No	Study Materials	Description
1	Dendrology	Theories and principles of tree taxonomy to identify and determine tree species using the theory and terminology of vegetative and generative organs, especially spermatophytes, using tree determination keys, performing plant collection techniques and specimen preparation
2	Forest Soil Science	Basic theories and concepts of forest soil ecosystem, process of soil formation and forest soil classification, forest soil physics, forest soil chemistry, forest soil biology; forest floor and soil organic matter, nutrient cycle of forest soil ecosystem, macro/micro fauna and flora of forest soil, forest plant nutrition, green manure and biological fertilizer, evaluation of forest soil quality, science and technology on sustainable forest soil ecosystem management
3	Forest Ecology	Theories and principles about ecosystems (forest vegetation and their environment) and their biophysical, social, economic, and cultural interactions on forest populations, communities, and structures. Science and Technology of forest ecosystem management
4	Forest Mensuration	Theories and principles of geospatial-based forest measurement; dimensions of timber forest products, tree measuring instruments. volume table for determining the volume of timber, forest potential and various economic, environmental and social functions as well as the value of its resources as a good and sustainable forest planning
5	Forest Development	Theory and art of producing and maintaining forests using silvika knowledge (tree vegetation in relation to environmental factors that create a quality place to grow and production capacity of forest areas), identification and formulation of forest cultivation technology problems, science and technology and the art of cultivating forest tree species and kinds of forest silvicultural regimes, sustainable forest system engineering and silviculture
6	Forest Resources Conservation	Theories and concepts on conservation, genetic diversity, species and speciation, ecosystems, small population impacts and influencing factors; the concept of island biogeography, landscape ecology, planning for biodiversity management, the concept of high conservation value areas (KNKT), the impact of development on biodiversity, and applying conservation strategies in managing forest natural resources. Science and technology for forest development, land conservation and ecosystem restoration
7	Forest Resources Management	An increasingly important component of teaching and managing forest resources is an understanding of how best to manage forests. An important element in a sustainable forest management strategy is to maintain the quality of forest resources through appropriate and sustainable forest resource management practices. Forest resource management includes the identification of various alternative community-based forest management models in production forests, protection forests, conservation forests, community plantation forests, and customary forests) as well as selecting appropriate management strategies for various forest resource management options. These options may include Forest Management Units (FMUs) including: Production-KPH, Protection-KPH, Conservation-KPH. Many forest ecosystems in the world have also been degraded due to various activities including: logging, encroachment, mining, conversion, natural disasters and other human anthropogenic activities. To maintain and restore forest ecosystems, it is necessary to master the theory and concepts of forest

		management including: management elements, management functions, and self-management. Meanwhile, the concept of forest resource management includes: criteria for determining forest areas, utilization of forest areas for forestry and non-forestry sectors, and product regulation in natural forests and plantation forests. Knowledge and understanding of forest recovery indicators and processes can be used to ensure that damaged/degraded forest ecosystems can be rehabilitated, reclaimed, or restored for the use of forest function preservation and economic improvement of the community and the state.
8	The Role of Forest for Sustainable Community and Environment	Forests are increasingly scarce and limited resources, decisions regarding the use of forest resources must be optimized by considering forest functions and the socio-economic-cultural conditions of the community. Forests are very important for the production of timber, non-timber forest products (NTFPs) and environmental services. Most of the forest area is currently being encroached on by the community for agriculture, mining, and the conversion of forest functions to other designated areas because the human population is constantly increasing, creating pressure on forest areas to be able to provide sufficient food, clothing, shelter and mineral materials. Forests are an ecosystem (biophysical, social, economic, and cultural interactions with populations, communities, and forest structures). Human activities have a strong impact on ecosystems. Forests as an ecosystem, play an important role in carbon sequestration and are habitats for a number of species that enrich biodiversity. Trees play a major role as a source and absorber of greenhouse gases. In the context of global sustainability, it is necessary to understand how forest functions for environmental sustainability can be planned, managed and controlled, especially changes in forest cover in forest land uses, including the effects of urbanization, forest conversion, and allocation of forest land to other use areas
9	Climatology	Explain the basic concepts of the climate system and the factors controlling the formation of climate; Atmosphere as space and formation of weather/climate and hydrological cycle; Relationship of solar radiation - climate - soil - abundance of plants - organisms; Climatic classification according to the needs of crop commodity development; Increased greenhouse gases and global warming, climate anomalies and hydrometeorological disasters, climate policy
10	Geology	About the origin of minerals and their applications. This mineral is important for forests, agriculture/horticulture, and mining, especially those related to soil fertility, fertilizers, and mining materials. This mineral is usually an important plant nutrient, application of geology to forestry and agricultural problems, particularly in relation to forest productivity. This field is a combination of several different fields, including geology, soil science, silviculture, agronomy, and chemistry. The overall goal is to promote forest productivity by using geological resources to improve the chemical and physical aspects of forest soils
11	Ecology	The interrelationship between living things and their environment
12	Sociology	Social science that studies social structures and social processes including social change, the relationship between humans and other humans, humans and groups, groups with groups, both formal groups and informal groups or both static groups and dynamic groups
13	Geography	The science of imaging, explaining the nature of the earth, analyzing natural phenomena and inhabitants, as well as studying the distinctive features of life and trying to find the function of the earth's elements in space and time
14	Mathematics	Mathematics functions to share the ability to calculate, measure, derive and use mathematical formulas needed in everyday life through measurement and geometry, algebra, probability and statistics, calculus and trigonometry. Mathematics also serves to share the ability to communicate ideas through mathematical models which can be in the form of mathematical sentences and mathematical equations, diagrams, graphs or tables
15	Economics	The science that studies the behavior of individuals and society making choices (with or without money) using limited resources, in the best way or alternative to produce goods and services to satisfy (relatively) unlimited human needs. The goods and services produced are then distributed for consumption needs now and in the future to various individuals and community groups
16	Art and Humanity	In essence, the humanities are sciences that are in contact with human values which include ethics, logic, aesthetics, Pancasila education, civic education, religion and phenomenology. In general, the humanities can be defined as an academic discipline that studies the human condition, using methods that are primarily analytic, critical, or speculative, as is characteristic of most natural empirical and social science approaches
17	Agroforestry	Land use (farming) that combines trees with agricultural crops to increase profits, both economically and environmentally. In this system, plant diversity is created within an area of land so that it will reduce the risk of failure and protect the soil from erosion and reduce the

		need for fertilizers or nutrients from outside the garden due to organic productivity and recycling of crop residues.
18	Information and Technology	Utilization of computer systems used to manipulate geographic data. This system is implemented with computer hardware and software that functions for data acquisition and verification, data compilation, data storage, data change and updating, data management and exchange, data manipulation, data retrieval and presentation and data analysis, in relation to natural resource management, land and soil.

7.2. Graduate Learning Outcomes Matrix (CPL) with Study Materials

Determination of study materials is an important step in the process of forming courses, of course this process takes into account the profile of the graduates to be desired and the learning outcomes that have been determined. Determination of study materials, of course, cannot be separated from the essence and nature or from the repertoire of science and technology to be developed by the Forestry Study Program. Each graduate learning achievement contains study material. While the study material can be in the form of one or more stems of knowledge and their different derivatives. Determination of the content of study materials in supporting the achievement of Learning Outcomes of Graduates of the Forestry Study Program can be seen in Table 7.2.

Table 7.2. Matrix of Graduate Learning Outcomes (CPL) with Study Materials

GRADUATE LEARNING OUTCOMES		BODY OF KNOWLEDGE																						
		FORESTRY SCIENCES								BASIC SCIENCES				NATURAL SCIENCES			ART AND HUMANITIES						APPLIED SCIENCES		
		Dendrology	Forest Soil Science	Forest Ecology	Forest Mensuration	Forest Hydrology	Forest Development	Forest Conservation	Forest Management	Physics	Chemistry	Biology	Mathematics	Climatology	Geology	Ecology	Economics	Law	Sociology	Linguistics and Communication	Humanities	Geography	Agriculture	Forestry	Information and Technology
Attitude (S):																									
S1	Fear of God Almighty and able to show a religious attitude																				V				
S2	Upholding human values in carrying out duties based on religion, morals, and ethics																		V	V	V				
S3	To act as citizens who are proud and love their homeland, have nationalism and a sense of responsibility to the state and nation;									V	V	V	V				V	V	V		V		V		
S4	Appreciate the diversity of cultures, views, religions, and beliefs, as well as the opinions or original findings of others;															V	V	V	V	V	V	V			
S5	Contribute to improving the quality of life in society, nation, state, and the progress of civilization based on Pancasila;																		V	V	V				V
S6	Cooperate and have social sensitivity and concern for society and the environment;						V	V	V					V		V	V	V	V		V				V
S7	Obey the law and discipline in the life of society and the state;						V	V	V							V			V		V	V			
S8	Internalize the spirit of independence, struggle, and entrepreneurship;																	V	V		V		V		V

S9	Demonstrate a responsible attitude towards work in their area of expertise independently.						V	V	V								V		V	V	V				
S10	To act as citizens who are proud and love their homeland, have nationalism and a sense of responsibility to the state and nation;	V	V	V	V	V	V	V	V					V	V	V									
Knowledge (P):																										
P1	Mastering the theory and principles of silvicultural processes, ecology, ecosystems, succession and dynamics of tropical forests	V	V	V			V	V	V	V	V	V		V		V									
P2	Mastering theories and principles regarding the interaction of ecosystem components (biophysical), social, economic, cultural, as well as harmony, and justice in community-based tropical forest management		V	V		V	V	V	V	V	V	V		V	V	V	V		V		V				V
P3	Mastering the theories, concepts and methods of tropical forest management, and the impact of development on forests, social/cultural/economic forestry, global warming and climate change				V		V	V	V																
P4	Mastering theories and concepts of the relationship between tropical forest management and social/cultural/economic forestry in sustainable development						V	V	V								V		V		V				
P5	Mastering theories and principles regarding forest resource conservation and the impact of development on forest resource sustainability		V	V		V		V		V	V	V		V		V									
P6	Mastering the theories, concepts and methods of assessing forest conditions based on ecological, economic, social and cultural principles					V				V	V	V	V			V									
P7	Able to think critically and apply and develop knowledge related to tropical forest management, conservation of forest resources and the environment		V	V	V	V	V	V	V								V		V		V				
General Skill (U):																										
U1	Able to develop logical, critical, systematic, and innovative thinking in the context of developing and implementing community-based forest management science and technology by paying attention to and applying humanities values according to their field of expertise		V	V	V	V	V	V	V								V		V	V	V				V
U2	Able to carry out academic validation or studies according to their field of expertise in solving		V	V	V	V	V	V	V				V				V		V		V				

	relevant community-based forest management problems through developing their knowledge and expertise																							
U3	Able to examine the implications of developing or implementing science and technology for community-based tropical forest management that pays attention to and applies humanities values according to their expertise based on scientific principles, procedures and ethics in order to produce solutions, ideas, designs or artistic criticism, as well as compose a scientific description of the results of the study in the form of a thesis or disseminated final project report						V	V	V				V							V	V		V	V	V
U4	Able to make appropriate decisions in the context of solving community-based science and technology development problems in tropical forest management based on analytical or experimental studies of information and data				V		V	V	V											V			V	V	V
U5	Able to document, store, secure, and rediscover research data in order to ensure validity and prevent plagiarism												V												V
U6	Able to internalize academic leadership in managing, developing and fostering resources and organizations under their responsibility						V	V	V										V		V				
U7	Able to develop, manage and maintain working networks with internal parties and institutions						V	V	V										V	V	V				
U8	Able to develop and identify the scientific field that is the object of study of his expertise and position it into a research that is developed through an interdisciplinary, multidisciplinary, or trans-disciplinary approach	V	V	V	V	V	V	V	V										V				V	V	
Keterampilan Khusus (K):																									
K1	Able to describe the characteristics, types of tropical forest ecosystems as well as the potential and constraints in the utilization of forest resources	V	V	V	V		V	V	V					V	V	V								V	
K2	Able to identify and describe the benefits of forest resources and carry out an assessment of forest benefits based on ecological, economic, social and cultural concepts				V		V	V	V					V		V	V							V	

K3	Able to present a database of forestry resources in an integrated manner using geomatics technology and Geographic Information Systems												V										V			V
K4	Able to prepare an indicative plan for forest restoration based on the ecological, economic, social and cultural conditions of the community in a watershed ecosystem unit or watershed area						V	V	V										V				V	V		
K5	Able to optimally organize forest structures for ecological, economic, social and cultural benefits and implement sustainable and integrated agroforestry systems						V	V	V					V		V							V	V		
K6	Able to diagnose forest conditions and develop alternative management based on ecological, economic, social and cultural sustainability principles		V	V	V	V	V	V	V					V		V								V		
K7	Able to disseminate techniques and concepts of forest management based on ecological, economic, social and cultural sustainability principles						V	V	V											V			V	V		
K8	Able to integrate forest and environmental resource management with climate dynamics as well as mitigation and adaptation to their impacts			V		V	V	V	V					V		V							V	V		
K9	Able to process various forest products using renewable and environmentally friendly science and technology								V														V	V		

CHAPTER VIII
COURSE FORMULATION AND CREDIT LOAD

8.1. Course Formulation

All levels of depth and breadth of learning materials that have been set to achieve learning outcomes are packaged into courses. Analysis of the relationship between the formulation of graduate competencies and study materials will develop the course and the estimated study load or time allocation. The considerations used in developing courses are:

1. The close relationship between study materials that will be studied better in an integrated way,
2. Scientific context, and
3. The appropriate learning methods that make competency achievement more effective and efficient and have a positive impact on students through comprehensive and integrative learning

The curriculum of the BFT Program must reflect this multidisciplinary nature. The students must receive lectures from various disciplines related to forest development, ecology and ecosystem conservation, forest management and socio-economics, and forest product technology so that they can understand forestry and environmental issues comprehensively, not partially. Since the students come from various fields of science in high school, the material provided is general so that it can be understood by them. Specific study materials that require more depth are given in compulsory courses and elective courses according to interest in forestry studies.

This program consists of 7 semesters of lectures and practicum and one semester of thesis completion. The students must complete a minimum of 144 credits to complete the BFT Program. The course structure consists of compulsory subjects for the study program (93 credits), compulsory university courses (21 credits), compulsory faculty courses (23 credits), and elective courses (7 credits).

The purpose of providing compulsory and elective courses is to provide students with special skills so that the students are expected to have an interest and skill in a particular field. Therefore, the BFT Program curriculum provides various elective courses according to student interests. This elective course is more technical or in-depth so that it can equip students to conduct research for their thesis.

The curriculum of the BFT Program is classified into four fields of interest which will produce professionals who can apply technology and have reliable managerial skills in the forestry and environmental fields. Students can choose their field of interest in semester 5. This preference is adjusted to the research topic plan to be carried out for their thesis project. Such field of interest are as follows:

1. Forest development
2. Ecology and conservation of forest resources
3. Forest management and socio-economic studies
4. Forest product technology

The course code is compiled based on the provisions of the course code. The code consists of two parts, the first part is capital letters and the second part consists of three numbers.

1. The first part consisting of three capital letters is the code of the study program that takes care of the subject, KHT (Forestry). Meanwhile, the code MKU (University Course), MFE (Faculty Course)
2. Course Code
    a) Compulsory courses of study program: The number in the first digit of the set of three numbers indicates the year of the Bachelor (S1) program, and the second and third digits indicate the serial number (hierarchy) of the courses of the compulsory undergraduate course of the study program.
    b) University compulsory courses: The first digit of the set of three numbers indicates the year of the Bachelor (S1) program, and the second and third digits indicate the serial number (hierarchy) of the subject of the university's compulsory undergraduate course.

c) Faculty compulsory courses: The first digit of the set of three numbers indicate the year of the Bachelor's program (S1), and the second and third digits indicate the serial number (hierarchy) of the subject of the faculty's compulsory undergraduate course.
d) Elective courses of study interest: The first digit of the set of three numbers indicates the year of the Bachelor (S1) program, and the second and third digits indicate the serial number (hierarchy) of the courses of elective courses of study interest in the undergraduate study program.

8.2. Credits

The semester credit units (SKS) have been formulated based on MoECRT No. 3 of 2020. The definition of credit is the amount of time for students learning activities per week per semester in the learning process through various ways of learning or the number of recognitions for the success of students' efforts in participating in curricular activities in a study program. In detail can be seen in Figure 1.

The composition of the curriculum is determined based on learning outcomes and study materials which will later be calculated into each course. The course credits calculation is determined by dividing the course load by the total load of all courses and then multiplying it by the total credits that must be taken in one study cycle in the BFT Program.

	Pengertian 1 sks dalam BENTUK PEMBELAJARAN (PermenDikBud No.3 Tahun 2020: Pasal 19)			Menit	Jam
A	KULIAH, RESPONSI, TUTORIAL				
	Kegiatan Proses Belajar	Kegiatan Penugasan Terstruktur	Kegiatan Mandiri		
	50 menit/ minggu/ semester	60 menit/ minggu/ semester	60 menit/ minggu/ semester	170	2,83
B	SEMINAR, atau bentuk pembelajaran lain yang sejenis				
	Kegiatan Proses Belajar	Kegiatan Mandiri			
	100 menit/ minggu/ semester	70 menit/ minggu/ semester		170	2,83
C	PRAKTIKUM, PRAKTIK STUDIO, PRAKTIK BENGKEL, PRAKTIK LAPANGAN, PRAKTIK KERJA, PENELITIAN, PERANCANGAN, ATAU PENGEMBANGAN, PELATIHAN MILITER, PERTUKARAN PELAJAR, MAGANG, WIRAUSAHA, DAN/ATAU PENGABDIAN KEPADA MASYARAKAT			170	2,83
	▪ Bentuk Pembelajaran dapat dilakukan di dalam Program Studi dan di luar Program Studi (Pasal 15) ▪ Bentuk pembelajaran dapat mengimplementasi (Bentuk kegiatan Belajar Merdeka Belajar - Kampus Merdeka)				

Figure 1. The translation of semester credit units (sks) into learning activities

CHAPTER IX
MATRIX AND CURRICULUM MAPPING

The curriculum structure of the BFT Program follows the guideline proposed by the DGoHE of the MoECRT (2020) including the stages of preparing the curriculum structure into a course matrix organization per semester by taking into account the following:

1) The stages of planned course learning to meet graduate learning outcomes;
2) The accuracy of the placement of the course that is adjusted to the continuity of the level of ability and integration between courses both vertically and horizontally;
3) The normal student learning load is between 8-10 hours per day per week which is equivalent to a load of 17-20 credits per semester.

In the MBKM curriculum, as stated by the DGoHE of MoECRT, the program is 2 semesters outside the study program through optional learning activities such as internships/work practices in the industry or other workplaces, carrying out community service projects in villages, teaching in school, participating in exchanges students, conducting research, conducting entrepreneurial activities, making independent studies/projects, and/or participating in humanitarian programs. The determination of credit is based on the composition of learning outcomes that can be categorized as Attitudes, Knowledge, Special Skills and/or General Skills, and time needed to build a learning experience to internalize the learning outcomes.

Therefore, the BFT Program determines the curriculum composition based on graduate learning outcomes (CPL) and study materials (BK) that have been prepared and other considerations. The credits for each course are presented in Table 9.1 and their ILO descriptions are presented in Table 9.2. In addition, the curriculum mapping of the offered courses in the BFT is shown in Figure 9.1.

Table 9.1 Course organization within curriculum structure at the BFT Program

SEMESTER I

NO	CODE	COURSE	SKS	PREREQUISITE
1	MKU-101	Pancasila (Five Principles)	2(1-1)	
2	MKU-102	Religion Education	3(1-2)	
3	MKU-103	Indonesian	3(1-2)	
4	MFE-101	Mathematics	3(3-0)	
5	MFE-102	Physics	3(2-1)	
6	MFE-103	Chemistry	3(2-1)	
7	MFE-104	Biology	3(2-1)	
8	KHT-101	Introduction to Forestry	2(2-0)	
Total			**22(14-8)**	

SEMESTER II

NO	CODE	COURSE	SKS	PREREQUISITE
1	MKU-104	Civic Education	2(1-1)	
2	MKU-105	English	2(1-1)	
3	MKU-106	Computer and Coding	3(1-2)	
4	MFE-105	Introduction to Natural Resources and Environment	2(2-0)	
5	KHT-102	Plant Morphology	2(1-1)	
6	KHT-103	Forest Soil	3(2-1)	
7	KHT-104	Climatology	3(2-1)	
8	KHT-105	Forest Mensuration	3(2-1)	
Total			**20(12-8)**	

SEMESTER III

NO	CODE	COURSE	SKS	PREREQUISITE
1	MFE-200	Scientific Writing	2(2-0)	
2	KHT-201	Dendrology	3(2-1)	KHT-102
3	KHT-202	Plant Physiology	3(2-1)	
4	KHT-203	Silvic	3(2-1)	
5	KHT-204	Forest Ecology	3(2-1)	
6	KHT-205	Forest Resource Inventory	3(2-1)	KHT-105
7	KHT-206	Forest Survey and Mapping	3(2-1)	
8	KHT-207	Field Trip	1 (0-1)	
Total			**21(14-7)**	

SEMESTER IV

NO	CODE	COURSE	SKS	PREREQUISITE
1	KHT-208	Statistics in Forestry	2(2-0)	
2	KHT-209	Wood Properties	3(2-1)	
3	KHT-210	Research Methodology	3(2-1)	
4	KHT-211	Silviculture	3(2-1)	KHT-203
5	KHT-212	Seeds and Nursery	3(2-1)	
6	KHT-213	Fundamentals of Forest Resource Conservation	2(2-0)	
7	KHT-214	Forest Resource Management	2(2-0)	
8	KHT-215	Geomatics & GIS in Forestry	3(2-1)	KHT-206
Total			**21(16-5)**	

SEMESTER V

NO	CODE	COURSE	SKS	PREREQUISITE
1	KHT-301	Genetics and Tree Breeding	3(2-1)	
2	KHT-302	Agroforestry	2(2-0)	
3	KHT-303	Forest Pests and Diseases	3(2-1)	
4	KHT-304	Forest Hydrology	3(2-1)	
5	KHT-305	Wood Processing Technology	3(2-1)	KHT-209
6	KHT-306	Forest Resource Economics	2(2-0)	
7	KHT-307	Forest Extension Services	2(2-0)	
8	KHT-308	Forest Planning	3(2-1)	
Total			**21(16-5)**	

SEMESTER VI

NO	CODE	COURSE	SKS	PREREQUISITE
1	MKU-300	Entrepreneurship	2(1-1)	
2	MFE-300	Academic English	2(2-0)	
3	KHT-309	Forest Protection and Health	3(2-1)	KHT-303
4	KHT-310	Forest Harvesting	3(2-1)	
5	KHT-311	Watershed Management	2(2-0)	KHT-304
6	KHT-312	Forest Policy	2(2-0)	
7	KHT-313	Social Forestry	2(2-0)	
8	KHT-314	Non-Timber Forest Products and Environmental Services	3(2-1)	
Total			**19(15-4)**	

SEMESTER VII

NO	CODE	COURSE	SKS	PREREQUISITE
1	MKU-400	Community Services and Development	4(0-4)	
2	KHT-400	Forest Internship	4(0-4)	
Total			**8(0-8)**	

SEMESTER VIII

NO	CODE	COURSE	SKS	PREREQUISITE
1	MFE-400	Thesis	5(0-5)	
Total			**5(0-5)**	

ELECTIVE COURSE

ODD SEMESTER

NO	CODE	COURSE	SKS	PREREQUISITE
1	KHT-401	Plantation Forest Management	2(2-0)	KHT-211
2	KHT-402	Methods of Social Research	3(2-1)	KHT-210
3	KHT-403	Biotechnology and Forest Plant Tissue Culture	3(2-1)	
4	KHT-404	Pulp and Paper Technology	3(2-1)	KHT-305
5	KHT-405	Wildlife Management	2(2-0)	
6	KHT-406	Forest Ecosystem and Climate Change	2(2-0)	KHT-104; KHT-204
7	KHT-407	Special Topic 1	2(2-0)	

EVEN SEMESTER

NO	CODE	COURSE	SKS	PREREQUISITE
1	KHT-408	Forest Resource Valuation	2(2-0)	KHT-306
2	KHT-409	Experimental Design	3(2-1)	KHT-210
3	KHT-410	Intensive Silviculture	3(2-1)	KHT-211
4	KHT-411	Variation and Improvement of Wood Quality	3(2-1)	KHT-305
6	KHT-412	Quantitative Ecology	3(2-1)	KHT-210; KHT-204
7	KHT-413	Special Topic 2	2(2-0)	

Remarks:

1. MKU : University courses.
2. MFE : Faculty courses.
3. KHT : BFT Program courses.
4. Prerequisite courses are courses that must be taken (even if they have not passed) to take the desired courses.
5. The students of the BFT Program can carry out MBKM activities by taking courses at the Study Programs of UNIB or at other universities or off-campus activities provided by the DGHE of MoECRT, especially internship and village building activities (Thematic Community Field Work), with the equalization to the relevant courses and the recognition of credits for MBKM activities refers to Decree of MoECRT No. 74/2021 concerning Recognition of Independent Campus Learning Credits.
6. The minimum of elective courses is 7 credits.
7. The total credits taken for graduation is a minimum of 144 credits.

The descriptions of the CPL courses offered in the Forestry Study Program curriculum applying MBKM are presented in table 9.2 below:

Table 9.2. Description of ILOs' Courses

Code	Course	ILOs Description
MKU 101	Pancasila (Five Principles)	Mastering the history, position and nature of Pancasila in the life of society, nation and state; Ability : (1) upholding human values in carrying out duties based on religion, morals, and ethics, (2) respecting the diversity of cultures, views, religions, and beliefs, as well as the opinions or original findings of others.
MKU 102	Religion Education	Mastering basic knowledge and the main points of religious teachings including monotheism/aqidah, holy books, sharia, and morals related to culture and worldviews that connect humans with the order of life; Ability: (1) fear God Almighty (2) and able to show a religious attitude, (3) uphold the belief in monotheism which is indicated by faith, carry out worship and the order of life based on the science of fiqh/shari'a, and have noble character.
MKU 103	Indonesian	Mastering the theory and principles of EBI (Indonesian Spelling) in written Indonesian carefully and accurately; history of the Indonesian language, the function and position of the Indonesian language, the variety of standard Indonesian languages, the rules for the use of words, the rules for the use of sentences, the rules for compiling paragraphs, scientific works;

		Ability: presentation of oral ideas/ideas using good and correct Indonesian using precise and careful diction.
MKU 104	Civic Education	Mastering the theory and concepts of constitutional legislation, construction of national resolutions, and participation in realizing national goals; Ability: obey the law and discipline in social and state life, act as citizens who are proud and love their homeland, have nationalism and a sense of responsibility to the state and nation.
MKU 105	English	Mastering the theory and function/position of English, variety of standard English, rules of using words and sentences, rules of paragraph preparation, scientific works, presentation of spoken ideas/ideas in standard English. Ability to present oral and scientific written ideas/ideas in standard English.
MKU 106	Computer and Coding	Mastering the theory and principles of computer programming, including: C++ language, program control structures, looping/iteration, functions, arrays, parallel port programming, object-oriented programming (OOP); Ability to operate computers and programming (Coding).
MKU 300	Entrepreneurship	Internalize the spirit of independence, struggle, and entrepreneurship; Mastering the theory of motivation, leadership, managerial, financial and investment analysis; Ability: cooperate and build networking, forestry entrepreneurs based on the rules/ethics of business and have the ability (practicing, reviewing, designing, utilizing science and technology, and running a business).
MKU 400	Community Services and Development	Have empathy and care for the problems of economically weak communities and are able to empower them to build themselves; Contribute to improving the quality of life in society, nation, state, and the progress of civilization based on Pancasila; Ability: cooperate and have social sensitivity and concern for society and the environment, implementation of science and technology in accordance with the field of expertise.
MFE 101	Mathematics	Mastering the theory of counting, measuring, deriving and using mathematical formulas needed in everyday life through measurement and geometry, algebra, probability and statistics, calculus and trigonometry; The ability to communicate ideas through mathematical models which can be in the form of mathematical sentences and mathematical equations, diagrams, graphs or tables.
MFE 102	Physics	Mastering the theory and basic aspects of climate physics and geophysics so as to provide an adequate foundation for understanding natural phenomena and phenomena that occur in everyday life.
MFE 103	Chemistry	Mastering the development and theory of chemistry, including: substances and matter, atoms, electrons and valence, chemical bonds, stoichiometry, solutions, acids and bases and salts, oxidation-reduction reactions, gravimetric and volumetric analysis so that they understand the importance in everyday life.
MFE 104	Biology	Mastering the theories and concepts of biology briefly and thoroughly to understand and master the broader branches of life sciences, including: material making up living bodies, the basics of metabolism, the basics of genetics, plant structure and function, animal structure and function, reproduction, growth, development, evolution, biodiversity, and the basics of ecology; Ability to identify and describe the material making up living bodies, metabolism, genetics, structure and function.
MFE 105	Introduction to Natural Resources and Environment	Mastering the theories and concepts of natural resource management and the environment, include: (1) natural resources and their classification, natural resource degradation, sustainable natural resource management, natural resource problems and their management. (2) the concept of environmental health, environmental pollution, environmental management, environmental problems and their management. (3) introduction to the economics of natural resources and the environment. Ability to identify and utilize ecological, socio-cultural, economic natural resources and the environment.
MFE 200	Scientific Writing	Internalize academic values, norms, and ethics; Mastering the theories and principles of Indonesian and English; Ability: in documenting, storing, securing, retrieving research data in order to ensure validity and prevent plagiarism, as well as describe the results of tropical forest and social studies studies in the form of reports or working papers in accordance with scientific writing principles.
MFE 300	Academic English	Mastering English and English forestry vocabulary;

		Ability to present verbal ideas/ideas and scientific works in the forestry sector in the form of reports or working papers in accordance with the rules of scientific writing in a variety of standard English (use of words and sentences, preparation of paragraphs).
MFE 400	Thesis	Mastering the principles and methods of research, writing scientific papers; Ability : (1) academic validation or study in accordance with their field of expertise in solving relevant community-based forest management problems through developing their knowledge and expertise, (2) dissemination of the results of community-based tropical forest management studies in the form of reports or working papers.
KHT 101	Introduction to Forestry	Mastering the context and alignment of forestry science, and the direction of interest you want to deepen in the forestry study program; The ability to explain the distribution of forests in the world is based on: latitude, on the high position of places; forest biology, forest management, forest conservation, forest products, and wood product economics.
KHT 102	Plant Morphology	Mastering the theory and terminology of vegetative and generative organs, especially spermatophyta; Ability to identify and describe the vegetative and generative organs of spermatophyta.
KHT 103	Forest Soil	Mastering the theories and concepts of soil formation and development, water-soil-plant relations, forest soil quality (physics-chemistry-biology), forest soil organic matter, forest soil nutrient cycles, forest soil nutritional status, green manure and biological fertilizers; Ability: forest soil review survey, evaluation of soil nutritional status and forest stands, science and technology for sustainable forest soil management.
KHT 104	Climatology	Mastering the theory of the climate system, the factors and factors controlling the formation of climate, the atmosphere as a space for dynamics of weather and hydrological cycles, the relationship of solar radiation-climate-soil-abundance of plants-organisms; Ability: measurement of weather/climate elements, AWS/DPS/DAS precipitation analysis, climate classification, forestry science and technology innovation and climate policy.
KHT 105	Forest Mensuration	Mastering the theory and principles of measuring various dimensions of timber forest products, whether processed wood, standing tree wood, fallen wood or stands; Ability: method of estimating and measuring trees and stands, the use of various tree measuring instruments, making volume tables for determining the volume of wood, especially for the volume of standing timber trees, methods of estimating forest composition and structure (INP, H' Shannon-Wiener, IS and ID Sorensen) and their interpretation.
KHT 201	Dendrology	Mastering the theory and principles of tree taxonomy: recognizing and determining tree species using vegetative characters; Ability to describe the characteristics of groups of tree flowers, use tree determination keys, perform plant collection techniques and specimen preparation.
KHT 202	Plant Physiology	Mastering the theory of growth and the factors that influence it; Ability description: tree physiological processes, seed and tree metabolism, tree structure and tree growth hormones, as well as influencing factors.
KHT 203	Silvic	Mastering the theories and principles of the art of cultivating natural forests and plantations; Ability to explain the process of forest development, forest ecosystem restoration, and post-mining forest land reclamation.
KHT 204	Forest Ecology	Mastering theories and principles about ecosystems (forest vegetation and their environment) and biophysical, social, economic, and cultural interactions with populations, communities, and forest structures. Ability: adapting to the development of science and technology for forest ecosystem management, conducting research and technological innovation in managing forest ecosystem resources.
KHT 205	Forest Resource Inventory	Mastering the theory and concept of forest resource inventory, including: (1) sampling method, (2) methods of estimating and measuring trees and stands, (3) the method of calculating the potential of forest resources, (4) the technique of calculating forest potential using the latest approach method; Ability to record the potential and carrying capacity of forest land and analyze it for the benefit of sustainable forest management.
KHT 206	Forest Survey and Mapping	Mastering the basic theory of forestry measurement and mapping methods to support the management of forest resource ecosystems;

		Ability: terrestrial mapping with survey tools, processing data from field measurements, manual presentation techniques to produce maps according to cartographic rules.
KHT 207	Field Trip	Cooperate and have social sensitivity and concern for society and the environment; Ability to implement science and technology on theories and concepts of forest ecology, forest ecosystems and biophysical, social, economic, and cultural interactions with populations, communities, and forest structures.
KHT 208	Statistics in Forestry	Mastering the science of forestry statistics, including: data scale, (1) data acquisition and population measurement as well as samples (sampling) and data presentation in the form of graphs and tables, (2) descriptive statistics containing knowledge about central tendencies (mean, median, mode, standard deviation, variance, quartiles, percentiles, skewness, and kurtosis of a set of statistical data), (3) statistical inference which includes probability, normal distribution, hypothesis formulation, statistical hypothesis testing using t distribution, Chi-Square distribution, F distribution (Anova) (4) Regression and correlation between data variables and how to understand the degree of relationship that occurs through the regression coefficient and the coefficient of determination, Ability to analyze population data and forestry sampling and make appropriate decisions to solve problems in tropical forestry based on data and information analysis.
KHT 209	Wood Properties	Mastering the theory of physical, mechanical, and chemical properties of wood; Ability : (1) measurement of wood properties (physics, mechanics, wood chemistry), (2) explanation of the factors that influence the physical, mechanical, chemical properties of wood, and the effect of components of wood properties on the utilization of wood.
KHT 210	Research Methodology	Mastering the theories and principles of the scientific method; Ability: developing reasoning and critical attitude in problem formulation and assessment procedures, obtaining objective scientific truth with scientific methods (starting from observation, problem formulation, hypothesis formulation, proof methods, scientific verification and theory classification.
KHT 211	Silviculture	Mastering the theory and basic principles of forest development (seedling, cultivation, production, and regeneration); Ability: identification and formulation of forest cultivation technology problems, reviewing and understanding science and technology and the art of cultivating forest tree species and forest silvicultural regimes, science and technology innovation for tropical forest development based on the principle of sustainability of functions and benefits of natural resources and the environment.
KHT 212	Seeds and Nursery	Mastering the theory and principles of seed technology and forest plant nursery management which includes reproductive biology, seed dormancy, seed quality, seed health, seed germination, nursery techniques, legislation and seed certification, resource management and nursery techniques; Skills: collection of fruit and seeds, handling and testing of seeds, storage and packaging of seeds, trade and traffic of seeds, special seed handling, forest plant nursery techniques.
KHT 213	Fundamentals of Forest Resource Conservation	Mastering theories and concepts on conservation, genetic diversity, species and speciation, ecosystems, small population impacts and influencing factors; the concept of island biogeography, landscape ecology; Ability: planning for biodiversity management, concept of high conservation value area (KNKT), analysis of development impacts on biodiversity, application of conservation strategies in managing forest natural resources, science and technology on ecosystem restoration.
KHT 214	Forest Resources Conservation	Mastering management theories and concepts including: elements of management, management functions, and self-management; The ability to explain the concept of forest resource management includes: criteria for determining forest areas, utilization of forest areas for forestry and non-forestry sectors, and product regulation in natural forests and plantation forests.
KHT 2015	Geomatics and GIS for Forestry	Mastering integrated theories and approaches in measuring, analyzing, and managing descriptions and locations of terrestrial data (spatial data) in forest resource management; Ability to explain the meaning and scope of GIS, types and structures of spatial data (vector and raster), digitizing analog spatial data, georeferences, overlaying analysis, spatial analyses, spatial data layout, remote sensing.

KHT 301	Genetics and Tree Breeding	Mastering the theory and principles of general genetics, basic principles of forest tree genetics, principles of inheritance, genetic variation of forest trees, tree breeding methods, testing in tree breeding, vegetative propagation, sources of seed production, breeding programs and genetic conservation; Ability to apply tree domestication and tree breeding practices.
KHT 302	Agroforestry	Mastering the theory and concepts of cropping systems, multiple cropping, agroforestry, integrated farming systems, and soil/water conservation; Ability to adapt to the science and technology of agroforestry systems; Ability to analyze financial/economic agroforestry systems; Ability to disseminate agroforestry practices of a sustainable land use system.
KHT 303	Forest Pests and Diseases	Mastering the theory and principles of pests and diseases in forest plants, morphology and taxonomy of insects and pathogens, biology of insect pests and pathogens, ecology of insect pests and pathogens; The ability to manage insect pests and pathogens is important in plantations.
KHT 304	Forest Hydrology	Mastering the theory of watershed hydrology, hydraulics, geohydrology, hydrometeorology, soil as an element of the hydrological cycle, ground water and surface water. Measurement capability: rain interception on forest canopy, hydro-orological water at hydrometric or telemetry stations; Ability to model flow/sediment discharge curves and hydrograph analysis of synthetic surface water units; Ability to analyze watershed systems using SWAT, CN curve, and land water balance; Ability to model optimal land use based on land water management. Science and technology capabilities for water resource development and surface water conservation.
KHT 305	Wood Processing Technology	Mastering the science and technology of wood processing includes: the characteristics of raw materials, the process of making plywood, the process of making particleboard and fiberboard, the process of making pulp and paper; Ability to apply understanding related to processing characteristics, and utilization of wood forest products and non-timber forest products.
KHT 306	Forest Resources Economics	Mastering economic theory and forestry business management; Ability to analyze the financial and economics of plantations in cash flow projections (benefit cost analysis: NPV, NFV, AEV/EAI, BCR, IRR, MPI), and integrate them with other sciences in the field of forest management.
KHT 307	Forest Extension	Mastering the theories and concepts of extension science (adoption and diffusion), perception and participation, gender in forestry, application of forestry extension techniques; Implementation capability: extension method, communication process in extension, planning of extension program, evaluation of extension program.
KHT 308	Forest Planning	Mastering the theory and basic principles of operationalization of forest sustainability regulation, development of forest management paradigm and its planning Timber Extraction, Timber Management, Social Forestry), organizational structure of forest stakeholder unit; Ability to develop alternative forest management actions based on the social forestry paradigm.
KHT 309	Forest Health and Protection	Menguasai teori dan strategi perlindungan hutan yang efisien agar dapat controlling the magnitude of the forest's risk of damage so as to create a healthy forest; Ability to identify and describe forest damage problems along with forest protection strategies against damage and be able to conduct an assessment of forest health.
KHT 310	Forest Harvesting	Mastering the theory and operational principles of environmentally friendly harvesting of forest products (reduced impact logging); Ability to plan and choose appropriate harvesting methods to support sustainable forest management.
KHT 311	Watershed Management	Mastering watershed theory and concepts, watershed issues (hydrometeorological disasters, forest degradation, critical land, environmental pollution, institutions), Watershed Forum, Forest and Land Rehabilitation (RHL), building local initiatives in Control of Land Water Damage (PKPD), monitoring and evaluation of watershed health (water management, land use and spatial planning, socio-economic), Integrated Watershed Management Plan (RPDAS-T); Capability: monitoring watersheds, compiling RPDAS-T and building local initiatives in PKPD.
KHT 312	Forest Policy	Internalize Indonesia's tropical forest management policies in accordance with the laws and regulations, the principles of micro-meso level forest policy formulation; Ability: (1) presentation of forest policy analysis towards solving local, national and global problems, (2) obey the law and discipline in social and state life.
KHT 313	Social Forestry	Mastering the theories and concepts of Social Forestry (PS), including: understanding, objectives and benefits, actors, schemes and procedures for SF, namely: (1) Community Forest/HKm, (2) Community Plantation Forest (HTR/IPHS), (3) Village Forest (HD), (4) Customary Forest (HA),

		(5) Forestry Partnership Ability to disseminate and innovate social forestry development.
KHT 314	Non-timber Forest Products	Know and recognize NTFP products from the resin & gum group, essential oils, other extractives (medicinal plants, tannins and dyes), oils and fats, rattan and bamboo, carbohydrates, animal products, and environmental services for ecotourism. Ability to identify and describe: (1) types of NTFP commodities and the legal aspects of their utilization, (2) processing technology, quality improvement and added value, (3) marketing and business aspects of NTFP products.
KHT 400	Internship	Mastering the theory and concept of sustainable forest management; Ability: (1) internalize the spirit of independence, struggle, and entrepreneurship, (2) develop leadership capacity, collaborate, and build networking, (3) internalize the attitude of responsibility for work in the field of expertise independently, professionalism (understanding, skilled, capable, and dedicated) in several aspects of forest management in the interests that are explored.
KHT 401	Plantation Forest Management	Mastering the theory and principles of sustainable plantation forest management, including: (1) Industrial Plantation Forest (HTI) (2) Community Plantation Forest (HTR) (3) planning includes RKU and RKT (4) Forest development system (5) harvesting system (6) wood administration Ability : (1) making RKU and RKT (2) construction of HTI and HTR (3) marketing according to industrial or carpentry administration.
KHT 402	Social Research Methods	Mastering the theory and principles of forestry socio-economic research, including: (1) benefits and functions of social research, (2) types of social research, (3) social research methods, (4) social research design includes: research topics, problem formulation, research objectives and benefits, literature study, hypotheses, research subjects, types of data, research approach Ability: (1) the determination of research methods includes: quantitative research relying on numerical data and qualitative research relying on descriptive data. (2) determining the technique of determining objects, data collection techniques, data analysis techniques, verification of results, presentation of reports or scientific papers.
KHT 403	Biotechnology and Forest Tree Tissue Culture	Mastering the theories and principles of biotechnology and forest plant tissue culture, include: (1) Biotechnology and its development, (2) Tissue culture in forestry plants (3) Genetic engineering in the forestry sector (4) Microorganism biotechnology, (5) Crop protection biotechnology (6) Markers for forestry biotechnology, (7) Utilization of molecular markers for forestry biotechnology, (8) Biotechnology-based forest plant conservation, (9) Bioethics of biotechnology Ability to internalize biotechnology and tissue culture in silvicultural practices of industrial plantations and community plantations.
KHT 404	Pulp and Paper Technology	Mastering the theory and principles of pulp and paper raw materials, pulp and paper manufacture, pulp and paper quality, and factors affecting pulp and paper quality, types of paper products; Ability to process pulp and paper (starting from raw materials, preparation of raw materials, bleaching, paper making, and testing of paper properties).
KHT 405	Wildlife Management	Mastering the basic theories and concepts of wildlife management, the importance of wildlife conservation efforts in forest resource conservation activities, wildlife management in conservation and non-protected areas, wildlife management systems and case studies of wildlife management; Capability: (1) identification of problems in each case of wildlife management and formulating solutions, (2) management of wild animals in conservation and non-protected areas, (3) wildlife management systems and case studies of wildlife management.
KHT 406	Forest Ecosystem and Climate Change	Mastering the theory and concepts of forest ecosystems, including: ecosystems, niches, habitats, chemical biophysical processes, energy flows, biological and energy

		pyramids, types of ecosystems, mangrove ecosystems and peat swamp forests; Mastering the theories and principles of global warming and climate change, including: history of world climate change, increased GHG emissions (CO2, SOX, NOX, CFC5) and atmospheric warming, global warming and climate change, hydrometeorological disasters, climate change adaptation and mitigation, green investment , low/GHG emission-free technology, climate policy (strategies, programs, and activities) climate change control, climate change research; Capability: stimulation of green investment, adaptation and mitigation of climate change with the support of a carbon trading system and low/emission-free transfer of appropriate science and technology.
KHT 407	Special Topic 1	
KHT 408	Forest Resource Valuation	Mastering the theory and concept of forest resource valuation, including: tangible and intangible forest resource benefits, the concept of forest resource value and Total Economic Value (NET), forest resource valuation methods and natural resource economic valuation methods, exemplary results of forest resource assessments; The ability to evaluate forest resources, both tangible and measurable or unmeasured.
KHT 409	Experimental Design	Mastering the theory and basic principles of experimental design, treatment design and environmental design, single factor and factorial experimental design (CRD, RAK, RBSL, RPT), F test (Anova), further test of treatment mean comparison (T test, BNT, DMRT, Contrast Orthogonal), analysis of the relationship between variables using regression and correlation. Skills: experimental design according to the rules and principles of scientific research, use of statistical software/programs for data analysis of experimental results.
KHT 410	Intensive Silviculture	Mastering the theory and basic principles of intensive silviculture; Ability to study and understand science and technology and the art of cultivating superior plant species, environmental engineering and tree health developed in plantation and natural forests as well as various types of plantation forest silvicultural regimes.
KHT 411	Variation and Wood Quality Improvement	Mastering the theory and concept of variation and improvement of wood quality, including: (1) variations in basic properties in axial and radial positions as well as potential life and use value of wood, (2) variations in the anatomical structure, physics and mechanics of wood on the possibility of its use, (3) genetic variation of wood growth and quality, (4) variations of silvicultural techniques and wood quality; Ability to identify variations in the basic properties of wood and use science and technology and improve wood quality.
KHT 412	Quantitative Ecology	Mastering the basic theories and principles of various quantitative ecological methods in forestry research; Ability to apply various quantitative ecological methods, document, storing, and presenting ecological data.
KHT 413	Special Topic 2	

PETA KURIKULUM PROGRAM STUDI KEHUTANAN MENERAPKAN MBKM

FAKULTAS PERTANIAN, UNIVERSITAS BENGKULU

TAHUN 2021

No.	SMT / sks	PROGRAM PEMBELAJARAN DALAM PROGRAM STUDI KEHUTANAN																														PROGRAM MBKM																			
																																DALAM PT				PT LAIN				NON PT											
		S	P	U	K	S	P	U	K	S	P	U	K	S	P	U	K	S	P	U	K	S	P	U	K	S	P	U	K	S	P	U	K																			
		9		1,3,5,8		10		8		10	4	8	2	10	6	3		10	1	1	1	10	7	8	9	10	6	3		10		8																			
1	VIII	MFE-400				KHT-407				KHT-408				KHT-409				KHT-410				KHT-411				KHT-412				KHT-413																			
	5	5				2				3				3				3				3				3				2																			
		9		1,3,4,6		9,1	7	1,3,6,7	6,9	10	1,3	1	2,4	10	6	3		10	7	8	1	10	7	8	9	10	7	8	2	10	1,3	8	8																			
2	VII	MKU-400				KHT-400				KHT-401				KHT-402				KHT-403				KHT-404				KHT-405				KHT-406				MK MBKM D				MAGANG				KKN-T							
	8	4				4				4				3				3				3				2				2				4 - 20				20				20							
		9	4	6,7	9			4	7	10	2	3	6	10	3	3	7	10	2,3	3,6	4,6,8	8,1	7	3,6		7	4	3,7	7	10	4	3	2																			
3	VI	MKU-300				MFE-300				KHT-309				KHT-310				KHT-311				KHT-312				KHT-313				KHT-314				MK MBKM C															
	19	2				2				3				3				2				2				2				3				4 - 18															
		10	5	1,3,8		10	2,7	1,3	5,7	10	2	3	6	10	3,5	2,3	6,8	10	7	3	9	10	4	3,6	2	10	4	6	7	10	3,4	1	5																			
4	V	KHT-301				KHT-302				KHT-303				KHT-304				KHT-305				KHT-306				KHT-307				KHT-308				MK MBKM B															
	21	3				3				3				3				3				2				2				3				10															
		10	7	3,4		10	7	3,8	9	10	6	1,3	6	10	1,3,7	1,3	2,4,6	10	1,7	1,3	2	10	1,5,7	1,3,4	1,2,7	10	3,4,5	1,3,6	2,4	10	7	1	3																			
5	IV	KHT-208				KHT-209				KHT-210				KHT-211				KHT-212				KHT-213				KHT-214				KHT-215				MK MBKM A															
	21	2				3				3				3				3				2				2				3				10															
		3		3,5	7	10	7	2	1	10	7	2,3	1	10	1,2,5	1,3	1,2	10	1,2,5	1,3,8	1,2,5	10	6	2,4	2,6	10	6	3,5	2,4	7	2	1,2	1																			
6	III	MFE-200				KHT-201				KHT-202				KHT-203				KHT-204				KHT-205				KHT-206				KHT-207																			
	21	2				3				3				3				3				3				3				1																			
		4,5,8		6		10		3	7	10		1	3	10	2,5	1,3	2	10	7	2	1	10	1	1	1,2	10	3	8	8	10	6	2	2,6																			
7	II	MKU-104				MKU-105				MKU-106				MFE-105				KHT-102				KHT-103				KHT-104				KHT-105																			
	20	2				2				3				2				2				3				3				3																			
		5,6				1,2				4		3	7	10	7	1	3	10	7	1	8,9	10	7	1	9																							
8	I	MKU-101				MKU-102				MKU-103				MFE-101				MFE-102				MFE-103				MFE-104				KHT-101																			
	22	2				3				3				3				3				3				3				2																			

	MKWU DAN PENDUKUNG
	MKW FAKULTAS
	MKW PS KEHUTANAN
	MK PROGRAM MBKM NON PT
	MK PILIHAN

Figure 9.1 Mapping of Study Program Curriculum with MBKM Program Implementation

CHAPTER X
SEMESTER COURSE DETAIL (RPS)

The learning program is designed based on the concept of the BFT Program's Curriculum of 2021 and the implementation of the curriculum of MBKM. Learning activity is carried out following the standard of the learning process by determining:

1. Characteristics of the learning process (interactive, holistic, integrative, scientific, contextual, thematic, and effective) and student-centered;
2. Develop a semester learning plan/module handbook (RPS);
3. Workload assessment (lecturers and students) by using learning resources according to environmental conditions, facilities, and infrastructure.

The design of the learning process is translated into RPS that is developed by lecturers independently or by groups. RPS focuses on how to guide students to learn so that they have abilities following the learning outcomes that are imposed on the courses/blocks. The student-centered learning (SCL) design is also implemented. The RPS is used to ensure the achievement of graduate learning outcomes (CPL) that are reviewed periodically. Therefore, the RPS serves as a guide for lecturers and the teaching team in implementing, evaluating, and reporting the results of the assessment. RPS is also served as a guide for students to learn and an instrument of quality assurance for the BFT Program.

The preparation of the RPS is carried out through the following stages: determining the learning outcomes assigned to the course (CPMK), determining the stages of learning/learning analysis/composing sub-CPMK, determining study materials/discussion topics, determining methods and forms of learning to achieve sub-CPMK and determination of learning assessment. CPMK is required:

1. Oriented to students, not to lecturers or courses/subjects;
2. Oriented to learning outcomes, not to the learning process.

The semester learning plan or module handbook samples are presented in the **Exemplary Module Evaluation Process document.**

CHAPTER XI
THE IMPLEMENTATION PLAN OF THE RIGHT TO STUDY OUTSIDE THE STUDY PROGRAMME

11.1. Right to Study Outside the BFT Program at the University of Bengkulu

The students can take learning outside the study program in more than 1 study program within the University of Bengkulu and the credits that can be taken is a maximum of 20 credits. It can be carried out by taking 1 full semester equivalent to 20 credits, or it can be taken not completely in one semester, but by being distributed over more than one semester so that the total credits become a maximum of 20 credits.

The students who will take part in alternative learning outside the study program at the University of Bengkulu must meet the requirements and follow the applicable regulations. These requirements are:

2. Students are registered as active students of the University of Bengkulu;
3. Students have taken several credits which include university/faculty compulsory courses and the major competencies of study programs at a minimum;
4. Students obtain approval from academic supervisors and majors/study programs.

In addition, students also must understand the financial requirements that may apply to taking this course scheme.

11.2. Right to Study Outside at the University of Bengkulu

The students can participate in learning outside the study program in more than one study program outside the University of Bengkulu. The maximum credits, the way recognition of the credits, and the requirements are the same as the above-mentioned.

11.3. Right to Study Outside of University

The students can also take part in learning outside the study program at other institutions (outside universities) and the credit that can be taken is a maximum of 20 credits. It can be carried out by taking 1 full semester equivalent to 20 credits through MoECRT's MBKM activities, such as Internships, Villages Projects, Thematic Community Services, etc. Other than that, the students who will take this scheme must be 7th-semester students, the maximum credits, the way recognition of the credits, and the requirements are the same as the above-mentioned.

CHAPTER XII
MANAGEMENT AND MECHANISM FOR IMPLEMENTING CURRICULUM

12.1. Curriculum Implementation Management

Management of curriculum is implemented based on the management principles (planning, actuating, organizing, and controlling) to provide convenience to lecturers and students in carrying out the learning process. Learning activities conducted by the teaching staff for the students are including general assignments, additional assignments, scheduling, study group development, attendance recording, extra-curricular activities, exams, scoring and grading, remedial, and the role of lecturers in implementing RPS. To run the learning process effectively, the rewards and punishments mechanism by the program administration is also implemented, thus, the lecturers are committed to their duty and responsibility.

Implementation of the BFT Program curriculum, along with the MBKM activities, emphasizes the key role of the academic supervisor (PA). Therefore, the PAs were given refreshments through special meetings to discuss MBKM along with the socialization of Standard Operational Guidelines (POB). In addition, students also need to be given an understanding of the rights they have to attend lectures outside the BFT Program within higher education/UNIB and outside UNIB or other institutions outside of higher education.

The students in semesters 5 and 6 can take a maximum of 20 credits out of a total of 40 credits offered in these two semesters. MBKM courses can be taken within the UNIB's study program or outside UNIB, i.e., the eight MoECRT's MBKM activities. Courses with MFE and MKU codes must be taken, while courses of study program codes can be selected based on courses relevant to the MBKM program. Meanwhile, the 7-th semester's students can take a maximum of 20 credits from 40 credits in 2 (two) MBKM activities such as Internships, Villages Projects, Thematic Community Services, etc. Recognition of credits for MBKM activities refers to the Decree of the Ministry of Education and Culture No. 74/P/2021 concerning Recognition of Independent Campus Learning Credits (*Pengakuan SKS Pembelajaran Kampus Merdeka*).

Table 12.1. The BFT Program Curriculum Distribution Implemented in MBKM

SEMESTER V

No	Code	Course	SKS	Prerequisite
1	KHT-301	Genetics and Tree Breeding	3(2-1)	
2	KHT-302	Agroforestry	2(2-0)	
3	KHT-303	Forest Pest and Diseases	3(2-1)	
4	KHT-304	Forest Hydrology	3(2-1)	
5	KHT-305	Wood Processing Technology	3(2-1)	KHT-209
6	KHT-306	Forest Resource Economics	2(2-0)	
7	KHT-307	Forest Extension Services	2(2-0)	
8	KHT-308	Forest Planning	3(2-1)	
Total			**21(16-5)**	

SEMESTER VI

No	Code	Course	SKS	Prerequisite
1	MKU-300	Entrepreneurship	2(1-1)	
2	MFE-300	Academic English	2(2-0)	
3	KHT-309	Forest Protection and Health	3(2-1)	KHT-303
4	KHT-310	Forest Harvesting	3(2-1)	
5	KHT-311	Watershed Management	2(2-0)	KHT-304
6	KHT-312	Forest Policy	2(2-0)	
7	KHT-313	Social Forestry	2(2-0)	
8	KHT-314	Non-Timber Forest Products and Environmental Services	3(2-1)	
Total			**19(15-4)**	

SEMESTER VII
INTERNSHIP IN SUSTAINABLE FOREST MANAGEMENT

No	Code	Course	SKS	Prerequisite
1	KHT - 400	Internship	4(0-4)	
2	KHT - 321	Forest Harvesting	3(2-1)	
3	KHT - 322	Forest Protection and Health	3(2-1)	KHT-312
8	KHT - 325	Non-Timber Forest Products and Environmental Services	3(2-1)	
4	KHT - 411	Plantation Forest Management	2(2-0)	KHT-223
5	KHT - 421	Forest Resource Valuation	2(2-0)	KHT-317
6	KHT - 423	Intensive Silviculture	3(2-1)	KHT-221
Total			**20(12-8)**	

EMPOWERED VILLAGE/KKNT

No	Code	Course	SKS	Prerequisite
1	MKU - 400	Community Services and Development	4(0-4)	
2	MKU - 300	Entrepreneurship	3(2-1)	
3	KHT - 313	Forest Extension Services	2(2-0)	
4	KHT - 318	Agroforestry	2(2-0)	
5	KHT - 324	Social Forestry	2(2-0)	
6	KHT - 325	Non-Timber Forest Products and Environmental Services	3(2-1)	
7	KHT - 411	Plantation Forest Management	2(2-0)	KHT-223
8	KHT - 421	Forest Resource Valuation	2(2-0)	KHT-317
Total			**20(14-6)**	

The curriculum of the BFT Program implements the MBKM curriculum managed by the MBKM commission according to the POB within the program. Eight program activities of the MoECRT's MBKM are carried out with Agreements (PKS) between universities, colleges, or other agencies. This is an implementation of the third, fourth, and fifth pillars of education, namely learning to live together (with others), learning to be, and; learning throughout life.

Implementation of the Internship is based on the PKS between the BFT Program and MBKM partners (forest companies, forest agencies, forest research institutes, watershed boards, and natural resource conservation agencies). Meanwhile, the Thematic Community Service and Development/KKNT activities are carried out based on the PKS between the Institute of Research and Community Services/LPPM or the BFT Program with the Village administrations. KKNT will be started with the establishment of an empowered village by the BFT Program or LPPM.

The implementation of MBKM began to be offered in the even semester of 2020/2021 FY to students starting from class 2017. This was disseminated through meetings with the PAs and students of class 2017, 2019, and 2020. The students can choose several options for their learning activities:

1. Courses beyond the study program within UNIB
2. Courses within study programs outside UNIB
3. Work or learning activities beyond higher education institutions, such as:
    a. Internship
    b. Teaching in school institutions
    c. Research
    d. Humanitarian project
    e. Entrepreneurship
    f. Independent project
    g. Thematic community services and development

12.2. Curriculum Implementation Mechanism

The learning taken by students is entirely in the UNIB Forestry Study Program or combined with learning outside the study program at Bengkulu University following the applicable Rector's Regulation. Students who choose learning activities in the Forestry Study Program until they graduate, then follow the mechanisms and procedures as they have been going on so far unless there is a change in regulations.

Meanwhile, students who will take part in alternative learning processes outside the Forestry Study Program in the form of non-lectures must follow other provisions. In general, students who take part in this type of learning must obtain approval from the Academic Supervisor and Study Program lecturer. After obtaining approval from the Academic Supervisor and Study Program lecturers, students carry out the registration process according to the mechanism determined by the partner institution or mutual agreement. If the student is approved/accepted by the partner institution, the student participates in learning activities at the partner's place and is obliged to submit a report on the results of the activities and outcomes to the supervisor and the department/study program. The format and systematics as well as the reporting form are determined by the Department/Study Program. The Department/Study Program may ask students to make presentations on the learning activities they are participating in. The value of this learning activity is the combined value of the supervisor and supervisor or assistant in the field from the partner.

12.2.1. Learning Outside the Forestry Study Program Inside UNIB

Students who will study outside the Forestry Study Program, but are still within the University of Bengkulu, must follow the following mechanism stages.

a. Students know the list of courses offered by other study programs.
b. Students together or with the approval of the Academic Supervisor (PA) choose courses offered by other study programs within Bengkulu University and are poured into the Study Plan Card (KRS).
c. Students take lectures and exams as applicable at Bengkulu University.
d. Lecturers who teach courses enter scores (study evaluation results) in the Bengkulu University academic system.
e. The results of the learning evaluation are submitted from the intended study program to the student's home study program as an archive.
f. Students who do not pass a course must repeat the study program at the time the course is offered again.

12.2.2. Learning Outside UNIB

12.2.2.1. Student exchange

The learning mechanism in the form of lectures at the Forestry Studies Program outside Bengkulu University is as follows.

a. Students know the courses and study programs of other colleges that offer courses for students of other colleges.
b. Students with the approval of their academic supervisors register in other tertiary education programs by following the rules and requirements determined by the relevant tertiary institution.
c. If declared accepted by the other tertiary institution, the student will participate in learning activities in the study program of the other tertiary institution.
d. Students submit evidence of having been accepted to attend lectures in other tertiary study programs and submit Study Plan Cards (KRS) to the original faculties and departments/study programs as well as academic supervisors. This KRS will be the basis for entering the courses taken (transfer, equalization, or recognition) by students into the Bengkulu University academic system.
e. Students submit reports on the results of learning activities to the faculties and departments/study programs of origin as well as academic supervisors.

12.2.2.2. Internship/Work Practice

Mechanisms or procedures for implementing Internships or Work Practices are as follows.

a. With the approval of the academic supervisor, students register or apply for internships/work practices with internship partners/work practices following the provisions set by the partners or mutual agreement.
b. If accepted, the Study Program/Department/Section appoints an internship supervisor/Work Practice.
c. Students carry out internship activities under the guidance of supervisors (field supervisors) from partners and internship supervisors.
d. Students fill in activity notes (log book) during the internship.
e. Students submit internship reports to the internship supervisor, and the logbook is submitted to the internship supervisor, study program/department/section, and the student's faculty of origin.
f. Internship supervisors evaluate by testing students on the internship/work practice activities they participate in
g. The internship supervisor submits the final score to the study program/department/section of the student's origin and enters the score into the Bengkulu University academic system.

12.2.2.3. Teaching Assistance in Education Units

Students who will take part in Teaching Assistance learning activities at the Education Unit follow the following procedure.

a. With the approval of the academic supervisor, students register by following the mechanism established by the education unit.
b. Students who are declared accepted shall report to their academic supervisor and study program/department.
c. The study program/department appoints a supervisor to guide and supervise this learning activity.
d. Students carry out teaching assistance activities in educational units under the guidance of assistant supervisors and tutors from the education unit.
e. Students fill in activity notes (log book) according to the activities carried out.
f. Students submit activity results reports (attached to activity notes) to the supervising lecturers.
g. The supervising lecturer evaluates students for the implementation of activities that have been carried out in the form of exams.
h. The supervising lecturer submits the final score to the study program/department and enters the score in the Bengkulu University academic system.

12.2.2.4. Research

Learning activities in the form of Research/Research are taken through the following stages.

a. With the approval of the academic supervisor, students register and participate in the selection of Research/Research activities at a research institution, university, laboratory, study center, studio, and others.
b. Students who are declared accepted report and submit proof of acceptance to the academic supervisor and study program/department.
c. The study program/department appoints a Research/Research supervisor.
d. Students carry out research activities under the direction and guidance of research institutes, universities, laboratories, study centers, studios, and others.
e. Students fill in Research/Research activity records (log book) according to the activities carried out.
f. Students prepare and submit reports in the form of scientific research results (thesis or scientific publications) and activity notes to supervisors.
g. The supervising lecturer evaluates students for the activities that have been carried out in the form of exams.

h. The supervising lecturer submits the final score to the study program/department and enters the score in the Bengkulu University academic system.

12.2.2.5. Humanitarian Project

Humanitarian Project activities are carried out through several stages as follows.

a. With the approval of the academic supervisor, the student registers or applies to volunteer for the Humanitarian Project at an institution that handles humanitarian projects or because of a program from the government.
b. If accepted, the student submits proof of acceptance to the Academic Supervisor, and the study program/department.
c. The study program/department appoints a supervisor.
d. Students carry out humanitarian project activities with the guidance of a supervisor.
e. Students fill in making activity notes (log book) while participating in humanitarian projects.
f. Students compile a written report (attached to activity notes) and submit it to the supervisor.
g. The supervising lecturer evaluates students for the activities that have been carried out in the form of exams.
h. The supervising lecturer submits the final score to the study program/department and enters the score in the Bengkulu University academic system.

12.2.2.6. Entrepreneurial Activities

The stages for participating in this learning activity are as follows.

a. With the approval of the academic supervisor, students register for an entrepreneurial activity program.
b. If accepted, students prepare entrepreneurship proposals under the guidance of the incubation center or entrepreneurship mentors and supervisors.
c. Students carry out entrepreneurial activities under the guidance of entrepreneurship supervisors and mentors.
d. Students submit the results of entrepreneurial activities and submit written reports.
e. The supervising lecturer evaluates students for the activities that have been carried out in the form of exams.
f. The supervising lecturer submits the final score to the study program/department and enters the score in the Bengkulu University academic system.

12.2.2.7. Independent Project

The stages of participating in the Independent Project activities as learning activities that will be taken are as follows.

a. With the approval of the academic supervisor, students prepare proposals for interdisciplinary independent study/project activities.
b. Under the guidance of the activity supervisor, students complete proposals for independent study/project activities.
c. If the proposal is accepted, with the guidance of the activity supervisor, students carry out independent study/project activities.
d. Produce products and participate in national and/or international competitions.
e. Students prepare and submit reports in written form and presentations as a form of evaluation to the activity supervisor.

f. The supervising lecturer submits the final score to the study program/department and enters the score in the Bengkulu University academic system.

12.2.2.8. Building a Thematic Village/Real Work Course (KKN)

The procedures and stages that are passed by students who will take this learning activity are as follows.

a. Students who have taken 6 semesters according to the guidelines from the Ministry of Education and Culture and with the approval of their academic supervisors register for Village Building/KKNT activities through UNIB's P3KKN.
b. Students who meet the requirements are declared as participants in the Village Building/KKNT activity for the period concerned by UNIB P3KKN.
c. P3KKN UNIB divides students into groups of interdisciplinary students with the number per group of approximately 10 students or can be adjusted to the circumstances.
d. P3KKN appoints a Thematic KKN supervisor.
e. UNIB P3KKN distributes students in groups to designated villages.
f. Students in groups carry out Village Development/KKN activities in the village and are guided/supervised by field supervisors. A field supervisor guides several groups.
g. Students submit reports on Village Building/KKNT activities to UNIB P3KKN.
h. P3KKN UNIB evaluates students and together with field supervisors makes assessments.
i. UNIB's P3KKN inserts grades into the UNIB academic system.

12.2.3. Recognition: Credit, equivalence, and evaluation

Each learning activity carried out by students is given a certain credit and is given a score according to the student's performance during the learning process, both in the lectures and non-lectures. Recognition of the credits, equality, and evaluation between lectures and non-lecture learning activities differ. Recognition of learning activities in the form of lectures refers to the lecture system that applies to each university, while non-lecture learning is carried out through several ways of recognition.

12.2.3.1. Lectures Activities

Learning activities in the form of lectures at Bengkulu University are regulated in the Rector's Regulation. The provisions for the weight of credits and their equivalence or recognition of Student Exchange learning activities in the form of lectures at other universities can be carried out as follows.

a. the weight of credits and courses in other tertiary education programs are recognized as the weight of credits and courses of study programs from Bengkulu University students; or
b. The subjects and the weight of the credits are transferred and equalized with the subjects and the weight of the credits of the study program from Bengkulu University students.

One thing is the possibility of other universities having a different scoring system in the category of quality scores and writing in the form of quality letters. If there is a difference in the system, the value obtained can be converted into the assessment system applicable at Bengkulu University.

12.2.3.2. Non-Lecture Learning Activities

Learning activities in the form of Internships/Work Practices, Teaching Assistance in Education Units, Research/Research, Humanitarian Projects, Entrepreneurship Activities, Independent Projects, and Village

Development/Thematic Community Service Programs can be done by equalizing the weight of credits in (a) free form, (b) structured form, and (c) combination.

12.2.3.2.1. Freeform

Equalization of credit weights in the free form is the distribution of activity items that reflect hard skills and soft skills along with the weights of credits without being equated with existing courses. For example, if student internships in the industry for 1 semester and the learning load is equivalent to 20 credits, then the credit weights can be translated based on the points of hard competence and soft competence, as in the following example.

Hard skills:

• Merumuskan permasalahan keteknikan	: 3 SKS	A
• Menyelesaikan permasalahan teknis di lapangan	: 3 SKS	B
• Kemampuan sintesa dalam bentuk design	: 4 SKS	A

Soft skills:

• Kemampuan berkomunikasi	: 2 SKS	A
• Kemampuan bekerjasama	: 2 SKS	A
• Kerja keras	: 2 SKS	A
• Kepemimpinan	: 2 SKS	A
• Kreativitas	: 2 SKS	B

12.2.3.2.2. Structured

The structured form is an equalization of learning activities for 1 semester (equivalent to 20 credits) with existing courses and credits. Example: Chemical Engineering students do internships in the Petrochemical Industry, then the students are equivalent to studying the following courses for 1 semester.

• Fenomena transport	2 SKS
• Unit operasi	3 SKS
• Industri proses kimia	3 SKS
• Rekayasa reaksi kimia	3 SKS
• Kontrol proses kimjia	3 SKS
• Teknologi separasi	2 SKS
• Laporan akhir sebagai pengganti skripsi	4 SKS

12.2.3.2.3. Combination

Equalization of the weights of credits and courses in a combination is carried out if the number of credits for courses that are in line with learning activities outside of tertiary institutions is not enough for 20 credits. Combinations are carried out between existing courses and competency items. Each study program can develop and formulate competency points following graduate learning outcomes.

12.2.4. Formulating the Competencies

The examples above are examples of the form of apprenticeship learning. A similar way can also be done in other forms of learning. Each study program within the University of Bengkulu can formulate or develop competency points and the weight of the credits that are adjusted to the learning achievements of graduates of the study program and the form of learning activities. The points of competence and the weight of the credits

can also be formulated with the partners. This is to determine what items of competence may be obtained at the partner's place. The agreed competency points will be used as a reference in scoring. In formulating/developing competency points, it must reflect the competency standards of graduates which include attitudes, knowledge, general skills, and special skills (Permendikbud no 3 of 2020 concerning National Higher Education Standards).

12.2.5. UNIB Forestry Study Program as Organizer

The UNIB study program can accept students outside the University of Bengkulu to take part in learning activities within the corridor of the Independent Learning-Independent Campus policy. Students outside the University of Bengkulu can attend lectures at the UNIB Forestry Study Program under the following conditions:

b. Students outside the University of Bengkulu are registered as active students in an accredited study program.
c. Students outside the University of Bengkulu must pass the selection for acceptance of learning activities within the framework of the Independent Learning-Independent Campus policy if the number of applicants exceeds the total capacity offered by the study program.
d. Students outside the University of Bengkulu who are declared accepted to take part in learning activities at the UNIB Forestry Study Program must fill out a study plan card and then attend lectures by following the provisions of the Bengkulu University academic regulations.
e. Admission process: registration and selection are carried out by the Bengkulu University department/study program. The results of the selection are submitted by the University of Bengkulu to the student's home university.
f. The results of the admission selection are also submitted to the relevant faculties at Bengkulu University to be further submitted to the forestry department/study program.

12.2.6. Provisions on Number of Students and Courses

The number of students who will take part in alternative learning activities outside the forestry study program is determined by the department/program. The Study Program can also limit the number of students outside the study program who will take part in the study. This research was conducted by considering the resources owned by the study program/department. The forestry study program can also determine the courses offered to be taken by students outside the study program. The courses offered must include the learning outcomes of the courses and a brief description of the courses.

12.2.7. Duties and responsibilities

In implementing the Independent Learning-Independent Campus policy, each level of the institution within Bengkulu University has a role, task, and responsibility. The description of the duties and responsibilities of each of these institutions is as follows.

2. Bengkulu University
    a. Provide general guidance in implementing the Independent Learning-Independent Campus policy.
    b. Collaborating and compiling memorandums of understanding with universities, non-universities, and other parties as partners both domestically and abroad to fulfill student rights in student learning according to their needs.
    c. Facilitate students in fulfilling student learning rights.
3. Faculties, Institutes, Study Centers
    a. Coordinate the preparation and development of a curriculum with the nuances of the Independent Learning-Independent Campus policy for each study program within the scope of its faculty and

propose the determination of the curriculum for the study program with the decision of the Chancellor.

b. Facilitating the implementation of the curriculum of study programs with the nuances of the Independent Learning-Independence Campus policy based on needs assessment and learning opportunities that can be followed by students both inside and outside Bengkulu University.
c. Coordinate with alternative learning partners outside the study program.
d. Issuing the legality of activities for students and supervisors.

4. Department/Study Program/Section
   a. Determine the courses that will be offered to students outside the study program. Courses offered and accessible to students throughout Indonesia must include a brief description and learning outcomes of the course.
   b. Select students who will take part in alternative learning outside the study program.
   c. Together with the Academic Supervisor, ensure that students who will take part in alternative learning outside the study program are following the learning achievements of the graduates of the study program.
   d. Together with the supervising lecturers, learning activities ensure that students can take part in alternative learning outside the study program that goes well.

5. Academic Advisor
   a. Guiding and directing students who will take part in alternative learning outside the study program so that they are within the corridor of learning outcomes for graduates of the study program.
   b. Together with students, they can formulate and choose alternative learning activities outside the study program.

6. Activity Supervisor
   a. Guiding students during alternative learning activities outside the study program.
   b. Coordinate with representatives of partners during the learning activities.
   c. Evaluating students and reporting the evaluation results to the study program/department/section and the faculty.

12.2.8. Other Terms

For students who choose to take part in learning in the full study program, then all compulsory courses offered in the study program must still be taken. Courses such as KKN, Thesis, Internship (or by another name), Field Work (or by another name), Entrepreneurship (or in other terms) which are compulsory subjects in the study program/department/faculty/university are still taken by students who choose to learn in the study program.
The estuary of implementing this policy is in the study program, therefore study programs should compile, develop and reorient their respective curricula following these guidelines and the Chancellor's Regulation No. 25 of 2020, before being offered to students according to the semester.