

**CURRICULUM
STUDY PROGRAM
AGRICULTURAL PRODUCT TECHNOLOGY**

BACHELOR PROGRAM



**FACULTY OF AGRICULTURE
MULAWARMAN UNIVERSITY**

2023

A. Study Program Identity

1	College	Mulawarman University
2	Faculty	Agriculture
3	Study Program	Agriculture Product Technology
4	Study Program Code	41231
5	Level	Bachelor
8	Address	Integrated Lab Building, Tanah Grogot St , Gunung Kelua Campus, Mulawarman University, Samarinda
9	Telephone Number	082119930460
10	E-mail Address	thp@faperta.unmul.ac.id
11	Website	http://yin.thp.unmul.ac.id/
12	Year and Establishment Permit / Decree, as well as the latest Extension Decree	Establishment of Bachelor's program Agricultural Product Technology in 2004 (No. 1364/D/T/2004) Extension of PS THP in 2006 (No. 2185/D/T/2006)
13	Year and Number of BAN PT and/or LAM Accreditation Decree (latest Decree)	Very Good in the Year of 2023-2028 No. 3631/SK/BAN-PT/Ak/S/IX/2023
14	Year and Decree of International Accreditation/Certification	-

B. Identity of the Head of Study Program

1	Name	Dr. Miftakur Rohmah, SP., MP.
2	Department	Associate Professor
3	Number of Assignment Decree	2394/UN17/HK/2021
4	Assignment Start Date	July 1 st 2021
5	Assignment Completion Date	June 25 th 2025
6	Phone/Whatsapp Number	081226911747

C. Curriculum Evaluation and *Tracer Study*

Evaluation is one of the stages in curriculum implementation and is carried out after the curriculum is implemented. The KKNI-based curriculum has been implemented since 2018 and is currently producing graduates as a result of the learning process carried out according to the agricultural product technology (APT) 2018 curriculum standards. Curriculum evaluation is carried out in several ways:

1. Consider stakeholder input
2. Evaluating tracer-studies to describe the competitiveness of agricultural product technology (APT) graduates
3. Evaluate learning outcomes

Tracer-study is carried out by filling in via the UPT Perkasa Unmul page (<http://perkasa.unmul.ac.>), as well as outreach to alumni through alumni associations and during graduation. The results of the tracer study show that the waiting time for graduates to get their first job is less than 6 months, an average of 74%. The relevance of the field of work to graduate competency reached a high relevance of 64.20%, while 23.46% had moderate relevance to the agricultural product technology (APT) Study Program competency domain. The relevance of the field of work is also related to the pandemic conditions which have caused the number of jobs to decrease, so that the available fields of work are not always relevant to the THP field. The results of the tracer study also show that 86.5% of agricultural product technology (APT) Study Program graduates work in national or private companies with legal entities.

Based on the results of the graduate user satisfaction survey, 60% were very satisfied with the ethics of agricultural product technology (APT) alumni, more than 50% of graduate users stated that their expertise in the field of key competency (BI) was at a very good level. Consecutively, graduate users stated that alumni have the ability to use information technology (IT), communication skills (KB), collaboration skills (KS), and excellent self-development. The results of the user satisfaction survey indicate that there is still a need to improve capabilities

Agricultural product technology (APT) Study Program also listened to input from stakeholders and graduate users as well as alumni and students of agricultural product technology (Study Program in the FGDs conducted for curriculum evaluation. In the input provided, improvements need to be given to improving communication skills, foreign language skills, especially English, increasing interest, mental attitude and entrepreneurial abilities as well as other soft skills that support entrepreneurial abilities.

Based on the input provided, it is necessary to make improvements to the 2018 agricultural product technology (APT) curriculum. Improvements are made in the form of changes and additions to courses, changes to credit weights, changes to semester placements, as well as changes to learning outcomes, Rencana Pembelajaran Semester/Semester Learning Plan (RPS) and lecture materials.

Results of evaluation of curriculum implementation

The 2018 curriculum, which is currently underway, has been prepared to meet the Indonesian National Qualifications Framework and is adjusted to the curriculum classification based on professional organizations in the field of Food Science and Technology/Agricultural Products Technology (Indonesian Food Technology Experts Association). In 2020, the Minister of Education launched the Merdeka Belajar Kampus Merdeka (MBKM) program which is mandatory for all tertiary institutions to participate in, becomes part of the assessment of Main Performance Indicators and is integrated into the agricultural product technology (APT) Study Program Higher Education Curriculum, the Unmul Faculty of Agriculture has gone through a number of workshops, FGDs and surveys to carry out evaluations. implementation of the 2018 curriculum. The recapitulation of input on curriculum implementation is as follows:

Tabel 1.3 Workshop Input Results

No	Realm Core Competencies	Description	Workshop Input Results
1	Chemistry and analysis of food/agricultural products	Explain the main chemical events that underlie the properties and reactions of various components of food/agricultural products	Appropriate/ Relevant
		Explain how to control chemical reactions that occur in food/agricultural products	Appropriate/ Relevant
		Explain the relationship between chemical reactions and damage mechanisms and shelf life of food/agricultural products.	Appropriate/ Relevant
		Explains the technical principles and methods of analyzing food/agricultural products	Appropriate/ Relevant
		Have skills in carrying out various basic and applied chemical analysis techniques on food/agricultural product charts	Appropriate/ Relevant
		Choose food/agricultural product analysis techniques that suit the characteristics of the ingredients and needs.	Appropriate/ Relevant
2	Biology, Microbiology and Safety of food/agricultural products	Identifying pathogenic microbes and causes of damage to food/agricultural products as well as their growth conditions	Appropriate/ Relevant
		Explain the environmental factors that influence microbial growth	It is relevant to add that the Humid Tropical Climate has different microflora, so that case studies can be presented more specifically.*)

No	Ranah Kompetensi Inti	Deskripsi	Hasil Masukan Lokakarya
		Explain and have skills in carry out microbiological analysis techniques in food/agricultural products	Appropriate/ Relevant
3	Engineering and processing of food/agricultural products	<p>Explain the characteristics of raw materials, ingredients and food additives and their influence on the characteristics of the food products/agricultural products produced</p> <p>Explain the mechanism of damage to food/agricultural products and identify ways to control it</p> <p>Explain mass and energy balance in the process of processing food/agricultural products.</p> <p>explains the principles of heat and mass transfer processes in the processing of food/agricultural products.</p>	<p>Appropriate/ Relevant</p> <p>Appropriate/ Relevant</p> <p>Appropriate/ Relevant</p> <p>Appropriate/ Relevant</p>

D. Curriculum Planning and Development Platform

This learning innovation based on excellence and local wisdom is based on six principles, namely:

1. **Centered on the potential, development, needs and interests of students and their environment.** The curriculum was developed based on the principle that students have a central position to develop their competencies in order to become human beings who believe in and are devoted to God Almighty, have noble character, are healthy, knowledgeable, capable, creative, independent and become democratic and responsible citizens.
2. **Pay attention to the diversity of student characteristics, culture and regional conditions.** This learning development is carried out without distinction between religion, ethnicity, culture and customs, as well as socio-economic status and gender. The curriculum includes the components of mandatory curriculum content, local content, and integrated self-development, and is arranged in a meaningful and appropriate connection and continuity between the substances.
3. **Balance between national interests and regional interests.** The curriculum was developed taking into account national interests and 5 regional interests to build social, national and state life. National interests and regional interests must complement and empower each other in line with the motto Bhinneka Tunggal Ika within the framework of the Unitary State of the Republic of Indonesia.
4. **Focusing on curriculum revitalization to create competitive graduates.** Learning development is carried out including improving institutional aspects, curriculum and learning system processes, recruiting prospective students, strengthening human resource capacity, strengthening infrastructure, quality assurance systems.
5. **Focuses on the implementation of learning innovation.** development of an education and learning system based on excellence and local wisdom implemented within a real-world environment-based learning framework, development of a virtual learning environment, increasing learning resources, increasing scientific-publication capacity and productivity, increasing human resource capacity in implementing educational paradigms, increasing quality assurance capacity education, and increasing information technology capacity and infrastructure.
6. **Ability to adapt to changing times.** Based on the historical strength of education in Indonesia and learning characteristics, today's students need multi-modality learning facilities, fast service, learning anytime and anywhere. Learning innovations that can accommodate student needs can be carried out based on excellence and local wisdom with student centered learning (SCL). Based on excellence and local wisdom, the aim is to achieve the ability to learn to learn (learning to learn)

Philosophical Foundations

The Principal Scientific Pattern (PSP) of Mulawarman University is "Wet Tropical Forests and Their Environment" which is a characteristic of Mulawarman University which can differentiate it from other universities in Kalimantan, in Indonesia or in the world. Based on this, the curriculum was developed with the following philosophy: (1) Education is a process of humanizing students in their human dignity. Education is aimed at developing spiritual intelligence, heart intelligence, intellectual intelligence, academic brilliance, through educational disciplines both in terms of instructional effect and nurturant effect; (2) Education is a cultural transformation, education is rooted in national culture to build the nation's present and future life. Students are creative inheritors of the nation's culture; (3) Education is to build a present and future life that is better than the past with various intellectual abilities, communication skills, social attitudes, concern, and participation to build a better life for society and the nation.

Sociological Foundations

The basis for developing a curriculum as an educational tool consisting of objectives, materials, learning activities and a positive learning environment for the acquisition of learner experiences that are relevant to the learner's personal and social development. The curriculum must be able to pass on culture from one generation to the next amidst the influence of globalization which continues to erode the existence of local culture. Competencies that must be possessed by prospective professionals in the 21st century include mastery of at least three competencies, namely, cultural minimization, namely the ability to control oneself and adapt to standards, in working conditions at an international level), cultural adaptation, and cultural integration

Psychological Foundations

The curriculum is able to continuously encourage student curiosity and can motivate lifelong learning; a curriculum that can facilitate students' learning so that they are able to realize their roles and functions in their environment; a curriculum that can cause students to think critically, and think at a higher level (higher order thinking); a curriculum that is able to optimize the development of students' potential to become the desired human beings (Zais, 1976, p. 200); a curriculum that is able to facilitate students learning to become complete human beings, namely human beings who are free, responsible, self-confident, moral or have noble character, able to collaborate, be tolerant, and become well-educated human beings who are determined to contribute to achieving the ideals in the preamble to the 1945 Constitution.

Juridical Foundation

- 1) Law of the Republic of Indonesia Number 14 of 2005 concerning Teachers and Lecturers (State Gazette of the Republic of Indonesia of 2005 Number 157, Supplement to State Gazette of the Republic of Indonesia Number 4586);
- 2) Law of the Republic of Indonesia Number 12 of 2012 concerning Higher Education (State Gazette of the Republic of Indonesia of 2012 Number 158, Supplement to State Gazette of the Republic of Indonesia Number 5336);
- 3) Presidential Regulation of the Republic of Indonesia Number 8 of 2012, concerning the Indonesian National Qualifications Framework (KKNI);
- 4) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 73 of 2013, concerning the Implementation of KKNI in the Higher Education Sector;
- 5) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 3 of 2020, concerning National Higher Education Standards;
- 6) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 5 of 2020, concerning Accreditation of Study Programs and Higher Education;
- 7) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 2020, concerning the Establishment, Changes, and Dissolution of PTNs, and the Establishment, Changes, and Revocation of PTS Permits;
- 8) Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 81 of 2014, concerning Diplomas, Competency Certificates and Higher Education Professional Certificates;
- 9) Guidebook for Preparing KPT in the Industrial Era 4.0 to Support Independent Learning on Independent Campuses, Directorate General of Belmawa, Dikti-Kemendikbud, 2020.
- 10) Mulawarman University Chancellor's Regulation No. 17 of 2020 concerning the Implementation of Education and Teaching, Research and Community Service Based on Independent Campuses and Independent Learning.

E. Vision, Mision, and Goals

VISION

Center for Resource Management and Scientific Development in the Field of Technology for Superior Agricultural Products and Characteristics of the Humid Tropics

MISION

1. Managing Institutional Resources, Humans, and Facilities to Improve the Quality of Students, Graduates, Lecturers, and Expand Partnerships
2. Carrying out research and community service to develop science and technology for agricultural products that are beneficial to society and support curriculum development
3. Increasing Output Productivity and Impact in the field of Agricultural Product Technology that Has Competitive Advantages Referring to the Thematic Specificities of the Humid Tropics

GOALS and TARGETS

Target 1. Managing and Improving the Quality of Lecturers and Staff and Expanding Partnerships

Objective 1.1: increase the number and qualifications of Practitioner Lecturers

Objective 1.2: increase the number and qualifications of industrial practitioners teaching in Study Program

Objective 1.3: balance the burden of student supervision between lecturers and adapt it as far as possible to applicable regulations.

Objective 1.4: balance the teaching load of lecture and adapt to the prevailing rules

Objective 1.5: balance the additional lecture task load evenly

Objective 1.6: record and support the achievement of lacture recognition/awards

Objective 1.7: strive to provide regular laboratory training every year

Objective 1.8: strive to refresh staff skills regularly every year

Target 2. Managing and Improving Student Quality

Objective 2.1: record and support lecture research programs involving students

Objective 2.2: record and support lecturer community service programs (PKM) involving students

Objective 2.3: foster student association participation in competitive student grant programs

Objective 2.4: support students in taking part in national and international competitions

Objective 2.5: facilitate students in participating in the MBKM program

Target 3. Manage Facilities and Financial Resources

Objective 3.1: Manage and Record Financial Allocations of PNBP/State University Operational Assistance (BOPTN) for APT Operations

Objective 3.2: Collect data on PNBP/BOPTN financial allocations for student operations

Objective 3.3: Collect data on PNBP/BOPTN financial allocations for research

Objective 3.4: Collect data on PNBP/BOPTN financial allocations for PkM

Objective 3.5: Collect data on PNBP/BOPTN financial allocations for investment in human resources, facilities and infrastructure

Objective 3.6: Plan Additional and Manage Laboratory Facilities

Objective 3.7: Plan and Initiate a Laboratory Accreditation Program

Target 4. Organizing and Developing Teaching, Research and PKM

Objective 4.1: Realize the APT Professional Compendium Book

Objective 4.2: Encourage and record scientific publications by APT lecturers, which are part of the teaching materials.

Objective 4.3: Implement Revision of the RPS and MK Learning Implementation Plan (RPP) Using PBL (Project Based Learning)

Objective 4.4: Encourage and Register APT Lecturer Research

Objective 4.5: Encourage and record PKM of APT lecturers

Target 5. Increasing Output Productivity in the APT sector Referring to the Thematic Specificities of the Humid Tropics

Objective 5.1: Encourage and Register lecturers' Scientific Publications and Involve Students

Objective 5.2: Encourage and record KI lecturers' registration and involve students

Objective 5.3: Maintain Quality Parameters. Average Student GPA ≥ 3.0 .

Objective 5.4: Maintain APT Accreditation Quality Parameters of at Least Very Good.

Target 6. Increasing Impact that Has a Competitive Advantage Refers to the Thematic Specificity of the Humid Tropics

Objective 6.1: Encourage and record citations of lecturers' scientific publications.

Objective 6.2: Encourage and record the use of lecturers' products in the community

Objective 6.3: Encourage and record the percentage of graduates working for < 6 months

Objective 6.4: Encourage and Register Graduates to receive a first salary equivalent to Regional minimum wage (UMR)

Objective 6.5: Encourage and Record Partner Collaboration

F. Profil Lulusan

Graduate Profile

The profile of agricultural product technology (APT) Study Program graduates, Faculty of Agriculture, Mulawarman University includes Academics, Educators and Research Assistants; Bureaucrats and government implementers; Industrial practitioners/consultants related to agricultural products and their processing; entrepreneurship in fields related to agricultural products and their processing.

a. Program Educational Objective (PEO) Description

PEO	Description
PEO -1	Academics, educators, and research assistants Competent in developing agricultural science and technology through education, teaching, and research
PEO -2	Bureaucrats and government implementers Competent in applying the principles of agricultural science and technology to solve problems of society, state, and nation
PEO -3	Industrial practitioners/consultants related to agricultural products and their processing. Competent in applying the principles of agricultural science and technology in the agricultural products industry
PEO -4	Entrepreneurship in fields related to agricultural products and their processing Competent in applying knowledge and technology of agricultural products in entrepreneurship

b. PEO Indicator

PEO	Indikator
PEO -1	<ul style="list-style-type: none"> - Able to design and carry out scientific research by producing research outputs - Have the ability to identify, analyze, synthesize, and formulate problems in the field of food/agricultural products. - Able to design and implement effective learning materials with the latest developments in the field of food/agricultural products
PEO -2	<ul style="list-style-type: none"> - Understand the role of technology in developing the food/agricultural sector and its impact on society. - Able to make decisions based on scientific evidence and relevant data and evaluate the impact of policies - Have the knowledge and skills needed to integrate food/agricultural product technology knowledge into policies and actions that can solve community and state problems in the agricultural context.
PEO -3	<ul style="list-style-type: none"> - Understand the structure of the agricultural and processing industries and average the supply and production processes

	<p>in these industries.</p> <ul style="list-style-type: none"> - Able to implement agricultural technology and innovation in processing processed products so that management can be efficient and of high quality. - Able to ensure agricultural products meet applicable quality and safety standards
PEO-4	<ul style="list-style-type: none"> - Able to identify opportunities to develop products or services based on agricultural products by integrating technological innovations in agricultural products - Able to apply appropriate and applicable food safety practices so that the products produced meet quality standards - Able to analyze markets, target markets, and develop effective marketing strategies for agricultural products

G. Program Learning Outcomes (PLO)

PLO Code	Description
PLO-1	Able to explain the structure, function, and properties of food/agricultural products, as well as changes during processing and storage
PLO-2	Able to identify and control physical, chemical, biological, and microbiological hazards in the food/agricultural product processing chain to ensure the quality and safety of agricultural products in accordance with regulations
PLO-3	Able to determine methods and apply food/agricultural product analysis techniques that are appropriate and in accordance with the objectives
PLO-4	Able to determine methods of storing, processing, preserving, and packaging food/agricultural products
PLO-5	Able to design the handling of materials and production processes for food/agricultural products in the humid tropics and the environment in a sustainable manner
PLO-6	Able to analyze data to design solutions for handling materials or food/humid tropical production processes in a sustainable manner
PLO-7	Able to demonstrate independent performance and organize a team to produce work in the field of food/agricultural products whose usefulness is recognized
PLO-8	Internalize academic ethics as a professional individual.

Program Learning Outcomes		Program Education Outcomes (PEO)			
		PEO 1	PEO 2	PEO 3	PEO 4
1.	PLO-1	√	√	√	√
2.	PLO-2	√		√	√
3	PLO-3	√		√	√
4	PLO-4	√		√	√
5	PLO-5	√	√	√	
6	PLO-6	√	√	√	
7	PLO-7	√	√	√	√
8	PLO-8	√	√		

H. Study Materials

Study Material Code	Description
1	<p>Chemistry, Biochemistry, Nutrition and Analysis of food/agricultural products</p> <p>This field of science includes the study of the chemical composition of food and agricultural products, as well as analytical techniques used to understand, measure, and control the chemical properties of food and agricultural products. It is a scientific discipline that combines the principles of biochemistry with aspects related to food, nutrition, and human health. The focus is on understanding the influence of chemical substances in food on the human body, both in the context of nutrition and their impact on health.</p>
2	<p>Microbiology of food/agricultural products and food safety</p> <p>Field of science related to the study of microorganisms involved in the production, processing, storage, and distribution of food products and agricultural products, as well as efforts to ensure food safety through understanding, controlling, and managing microorganisms</p>
3	<p>Food science/applied agricultural products</p> <p>A scientific discipline related to applying scientific knowledge to manage and optimize the production, processing, and distribution of agricultural and food products. This field of science focuses on meeting food needs, maintaining sustainable food supplies, and ensuring food safety.</p>
4	<p>Food/agricultural product processing technology engineering</p> <p>Science that focuses on developing, designing, and optimizing technological processes in processing food and agricultural products. The main goal of this field is to improve efficiency, quality, safety, and sustainability in the processing of food and agricultural products.</p>
5	<p>Life skills, ethics, and professionalism</p> <p>Focuses on the development of skills, ethical norms, and professional behavior in various life contexts</p>

I. Formation of Courses and Determination of Credit Weights

No	Study Material	Name of Courses	Credits	ECTS
1	Chemistry, Biochemistry, Nutrition and Analysis of food/agricultural products	1. Agricultural Product Chemistry I 2. Agricultural Product Chemistry II 3. Physical Chemistry of Agricultural Products 4. Analytical Chemistry for Agricultural Products Research 5. Biochemistry of Agricultural Products 6. Chemical Analysis of Agricultural Products 7. Food Nutrition 8. Practical physical and chemical analysis of agricultural products 9. Nutritional Evaluation in Food Processing 10. Enzyme Technology 11. Food Additives 12. Freshener Technology 13. Sugar and Polysaccharide Technology	1. 2-1 SKS 2. 2-0 SKS 3. 2-0 SKS 4. 2-0 SKS 5. 2-1 SKS 6. 2-0 SKS 7. 2-0 SKS 8. 0-2 SKS 9. 2-1 SKS 10. 2-0 SKS 11. 2-0 SKS 12. 2-0 SKS 13. 2-0 SKS	4.8 3.2 3.2 3.2 4.8 3.2 3.2 3.2 4.8 3.2 3.2 3.2 3.2
2	Microbiology of food/agricultural products and food safety	1. Biology of Agricultural Products 2. Microbiology of Agricultural Products 3. Microbiology of Agricultural Product Processing 4. Microbiological Analysis of Agricultural Products 5. Food Processing Industry Sanitation and Safety 6. Fermentation Technology 7. Lactic Acid Bacteria Technology 8. Quality Control 9. Food Regulations 10. Quality management of the agricultural products industry	1. 2-1 SKS 2. 2-0 SKS 3. 2-0 SKS 4. 2-0 SKS 5. 2-0 SKS 6. 2-0 SKS 7. 2-0 SKS 8. 2-0 SKS 9. 2-0 SKS 10. 2-0 SKS	4.8 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2 3.2
3	Food science/applied agricultural	1. Introduction to Humid Tropical Agriculture 2. Knowledge of Agricultural Ingredients 3. Processing technology	1. 2-0 SKS 2. 2-0 SKS 3. 2-0 SKS	3.2 3.2 3.2

	products	4. Product Development and Marketing 5. Sensory Test 6. Thesis Assistance I 7. Thesis Assistance II 8. Food Fortification Technology 9. Technology for Preserving and Packaging Agricultural Products 10. Warehouse Management 11. Technology and Management of Catering Services 12. Halal Food Technology and Management 13. Livestock and Aquatic Products Technology 14. Palm, Rubber, and Tobacco Technology 15. Legume, Cereal, and Tuber Technology 16. Oil and Fat Technology 17. Spice and Essential Oil Technology 18. Thesis	4. 1-2 SKS 5. 2-1 SKS 6. 0-1 SKS 7. 0-1 SKS 8. 2-0 SKS 9. 2-1 SKS 10. 2-0 SKS 11. 2-0 SKS 12. 2-0 SKS 13. 2-1 SKS 14. 2-0 SKS 15. 2-1 SKS 16. 2-1 SKS 17. 2-1 SKS 18. 0-6 SKS	4.8 4.8 1.6 1.6 3.2 4.8 3.2 3.2 3.2 4.8 3.2 4.8 4.8 4.8 4.8 9.6
4	Food/agricultural product processing technology engineering	1. Physics of Agricultural Products 2. Computer applications for the agricultural industry 3. Agricultural Statistics 4. Operation Unit 5. Economics Technology 6. Processing Tools and Machines 7. Physical Properties of Agricultural Products 8. Research Methodology 9. Experimental Design 10. Post-Harvest Physiology and Technology 11. Processing technology 12. Food Processing Technology and Agricultural Products 13. Factory Layout and Design 14. Operations Research 15. Mathematics 16. Technology for Utilization and Management of Agricultural	1. 2-1 SKS 2. 0-2 SKS 3. 2-1 SKS 4. 2-1 SKS 5. 2-0 SKS 6. 2-0 SKS 7. 2-0 SKS 8. 2-0 SKS 9. 2-0 SKS 10. 2-0 SKS 11. 2-0 SKS 12. 2-1 SKS 13. 2-1 SKS 14. 2-1 SKS 15. 2-0 SKS 16. 2-0 SKS	4.8 3.2 4.8 4.8 3.2 3.2 3.2 3.2 3.2 3.2 3.2 4.8 4.8 4.8 3.2 3.2

		Industrial Waste	17. 2-0 SKS	3.2
		17. Functional Food Processing Technology	18. 2-1 SKS	4.8
		18. Cake and Bread Technology	19. 2-0 SKS	3.2
		19. Fruit and Vegetable Technology		
5	Life skills, ethics, and professionalism	1. Religion	1. 2-1 SKS	4.8
		2. Pancasila	2. 2-0 SKS	3.2
		3. Indonesian	3. 2-0 SKS	3.2
		4. Basic Social and Cultural Sciences	4. 2-0 SKS	3.2
		5. Citizenship	5. 2-0 SKS	3.2
		6. Fundamentals of management	6. 2-0 SKS	3.2
		7. Agricultural English	7. 2-1 SKS	4.8
		8. Entrepreneurship	8. 2-0 SKS	3.2
		9. Street vendors	9. 0-2 SKS	3.2
		10. KKN	10. 0-4 SKS	6.4
		11. Seminar	11. 0-2 SKS	3.2

Note: 1 Credit = 1.59 ECTS

According to Rector decree Number 3908, year 2020, for SKS National Credit Conversion to Europe Credit (ECTS)

Table. Synchronization of Courses with Program Learning Outcomes (PLO)

No	Courses	Program Learning Outcomes (PLO)							
		PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8
Compulsory courses									
1	Religion (3 credits)								3
2	Pancasila (2 credits)								3
3	Indonesian (2 credits)								1
4	Basic Social and Cultural Sciences (2 credits)							1	2
5	Introduction to Humid Tropical Agriculture (2 Credits)			1		2			
6	Biology of Agricultural Products (3 credits)	1	1						
7	Agricultural Products Chemistry I (3 credits)	2							
8	Mathematics (2 SKS)					1			1
9	Citizenship (2 credits)								3
10	Agricultural English (3 credits)								
11	Entrepreneurship (2 credits)							1	
12	Fundamentals of Management (2 credits)							1	
13	Knowledge of Agricultural Materials (2 credits)	2	2						
14	Microbiology of Agricultural Products (2 credits)		3						
15	Physics of Agricultural Products (3 credits)	3							
16	Computer Applications for the Agricultural Industry			1				1	
17	Physical Chemistry of Agricultural Products (2 credits)	3							

18	Analytical Chemistry for Agricultural Products Research	2						
19	Agricultural Statistics (3 credits)			2			2	
20	Microbiology of Agricultural Product Processing		3		2			
21	Agricultural Products Chemistry II (2 credits)	1	2					
22	Physical Properties of Agricultural Products (2 credits)	2						
23	Operation Unit (3 credits)			2			3	
24	Biochemistry of Agricultural Products (3 credits)	2						
25	Food Nutrition (2 credits)	1						
26	Engineering Economics (2 credits)					2	2	
27	Quality Control (2 credits)		3					
28	Processing Tools and Machines (2 SKS)					3	2	
29	Research Methodology (3 credits)			2				
30	Experimental Design (3 credits)			2			3	
31	Chemical Analysis of Agricultural Products (2 credits)			2				
32	Post-Harvest Physiology and Technology (2 credits)	1						
33	Sanitation and Safety in the Food Processing Industry (2 SKS)		3					
34	Process Technology (2 credits)				3			
35	Practical Physico-Chemical Analysis of Agricultural Products (2 credits)	2						2
36	Microbiological Analysis of Agricultural Products		2				1	
37	Operations Research (2 credits)			3			1	

38	Factory Layout and Design (2 SKS)			1					
39	Agricultural Product Preservation and Packaging Technology (2 SKS)				3				
40	Food Processing Technology and Agricultural Products				3				
41	Sensory Test			2			2		
42	Food Regulation (2 credits)		1						
43	Product Development and Marketing	1		1		2			
44	Thesis Assistance Practicum I (1 credit)								
45	Thesis Assistance Practicum II (1 credit)					3		1	
46	Field Work Practice (2 credits)							3	
47	Thematic KKN/KKN (4 credits)							3	3
48	Seminar (2 credits)							1	1
49	Thesis (6 credits)	2	2	2	2	2	2	2	2

Name of Elective Courses								
1	Freshener Technology	1			1			
2	Fruit and Vegetable Technology				1			
3	Sugar and Polysaccharide Technology	2			1			
4	Legume, Cereal and Tuber Technology							
5	Palm, Rubber and Tobacco Technology					1		
6	Livestock and Aquatic Products Technology		2		1			
7	Nutritional Evaluation in Processing			1				
8	Oil and Fat Technology	2						
9	Fermentation Technology				1			
10	Quality Management of the Agricultural Products Industry		3					
11	Functional Food Processing Technology			1	2			
12	Lactic Acid bacteria technology		1					
13	Food Fortification Technology			2	1			
14	Spice and Essential Oil Technology						1	
15	Cake and Bread Technology					1	1	
16	Technology for Handling and Processing Agricultural Industrial Waste		2	2				
17	Enzyme Technology	2		1				
18	Warehouse Management				3	1		
19	Halal Food Technology and Management							
20	Technology and Management of Catering Services				1			1
21	Food Additives (2 credits)		1		1			
	Selected Topic 1 (2 credits)							
	Selected Topics 2 (3 credits)							
	Selected Topics 3 (4 credits)							
	Selected Topics 4 (6 credits)							

J. Curriculum Matrix and Map (Curriculum Structure)

The Curriculum Structure of the Agricultural Products Technology Study Program contains the following elements:

- i. Character Strengthening Course;
- ii. Related Study Program Field Subjects;
- iii. Cross-Field Courses in 1 (one) field of knowledge;
- iv. Cross-sector Courses across fields;

b. Curriculum Matrix that accommodates the MBKM Program

Semester	Number of credits	LEARNING PROGRAM IN THE PROGRAM										MB-KM PROGRAM *)		
												In-PT	Another-PT	Non-PT
1	2	3										4	5	6
VIII														
VII	13	22030367 1W001	MU00006 03W007	2203036 72W003	2203036 76W004							MBKM Free Form 2-20 SKS	MBKM Free Form 2-20 SKS	MBKM Free Form 2-20 SKS
		1 Sks	4 Sks	2 Sks	6 Sks									
VI	24	22030366 1W001	22030366 3W002	2203036 63W003	2203036 62W004	Elective courses						MBKM Free Form 2-20 SKS	MBKM Free Form 2-20 SKS	MBKM Free Form 2-20 SKS
		1 Sks	3 Sks	3 Sks	2 Sks	14 Sks Max.								
V	24	22030365 3W001	22030365 3W002	2203036 52W003	2203036 52W004	2203036 52W005	Elective courses							
		3 Sks	3 Sks	2 Sks	2 Sks	2 Sks	12 Sks Max.							
IV	21	22030364 3W001	22030364 3W002	2203036 42W003	2203036 42W004	2203036 43W005	2203036 42W006	2203036 42W007	22030364 2W008	22030364 2W009		YOU ARE NOT ALLOWED TO PARTICIPATE IN THE MBKM PROGRAM EXCEPT TAKE COURSES ON A		
		3 Sks	3 Sks	2 Sks	2 Sks	3 Sks	2 Sks	2 Sks	2 Sks	2 Sks				
III	21	22030363 2W001	22030363 2W002	2203036 33W003	2203036 32W004	2203036 32W005	2203036 32W006	2203036 32W007	22030363 3W008	22030363 2W009				
		3 Sks	2 Sks	3 Sks	2 Sks	3 Sks	2 Sks	2 Sks	2 Sks	2 Sks				
II	22	MU00006 02W003	22030362 3W002	2203036 23W003	2203036 22W004	2203036 22W005	2203036 22W006	2203036 22W007	22030362 2W008	22030362 2W009	22030362 2W010			
		2 Sks	3 Sks	3 Sks	2 Sks	2 Sks	2 Sks	2 Sks	2 sks	2 sks	2 sks			

I	19	MU00006 03W001	MU000060 2W002	MU0000 602W004	MU00006 02W006	22030361 2W005	22030361 3W006	22030361 3W007	220303612 W008			STUDY PROGRAM IN THE UNI ENVIRONMENT OR PARTICIPATE IN A STUDENT EXCHANGE
		3 Sks	2 Sks	2 Sks	2 Sks	2 Sks	3 Sks	3 Sks	2 Sks			

Students of the Agricultural Product Technology Study Program have the obligation to complete a total of 144 credits (230 ECTS), consisting of 117 credits (187.2 ECTS) of compulsory courses and 27 credits (43.2 ECTS) of elective courses. This curriculum is designed to equip students with academic competencies and practical skills that are in accordance with the needs of the agricultural and food industries.

The details of the distribution of the academic load that must be taken are as follows

1. Compulsory courses

- a. Students must complete 117 credits (187.2 ECTS), which include basic courses, skill courses, and supporting courses in the field of Agricultural Product Technology.
- b. This compulsory course is distributed from Semester 1 to Semester 7.
- c. Included in the compulsory courses, there are courses for the completion of the final project, which consists of:
 - Thesis companion 1:1 credits (1.6 ECTS) (presented in semester 6)
 - Thesis companion 2: 1 credits (3.2 ECTS) (presented in semester 7)
 - Seminar: 2 credits (3.2 ECTS) (presented in semester 7)
 - Thesis: 6 credits (9.6 ECTS) (presented in semester 8)

2. Elective courses

- a. Students are required to take 27 (43.2 ECTS) credits from elective courses to fulfill a total of 144 (230 ECTS) credits
- b. The elective courses presented are 49 credits (78.4 ECTS), which are divided into
 - Semester 5: 23 credits (36.8 ECTS)
 - Semester 6: 26 credits (41.6 ECTS)

Table. List of Required Courses

No	Course Code	Course Name	Credits			C/E*	ECTS
			Class	Practice	Total Credits		
<i>Semester 1</i>							
1	MU0000603W001	Religion	2	1	3	C	4.8
2	MU0000602W002	Pancasila	2	0	2	C	3.2
3	MU0000602W004	Indonesian Language	2	0	2	C	3.2
4	MU0000602W006	Basic Social and Cultural Sciences	2	0	2	C	3.2
5	220303612W005	Introduction to Humid Tropocal Agriculture	2	0	2	C	3.2
6	220303613W006	Biology of Agricultural Products	2	1	3	C	4.8
7	220303613W007	Agricultural Products Chemistry I	2	1	3	C	4.8
8	220303612W008	Mathematics	2	0	2	C	3.2
		Total	16	3	19		
<i>Semester 2</i>							
9	MU0000602W003	Citizenship	2	0	2	C	3.2
10	220303623W002	Agricultural English	2	1	3	C	4.8
11	220303623W003	Fundamentals of Management	2	0	2	C	3.2
12	220303622W004	Knowledge of Agricultural Materials	2	0	2	C	3.2
13	220303622W005	Microbiology of Agricultural Products	2	0	2	C	3.2
14	220303622W006	Agricultural Products Chemistry II	2	0	2	C	3.2
15	220303622W007	Computer Applications for the Agricultural Industry	0	2	2	C	3.2
16	220303622W008	Physical Chemistry of Agricultural Products	2	0	2	C	3.2
17	220303622W009	Analytical Chemistry for Agricultural Products Research	2	0	2	C	3.2
18	220303622W010	Physics of Agricultural Products	2	1	3	C	4.8
		Total	18	4	22		

Semester 3							
19	220303632W001	Agricultural Statistics	2	1	3	C	4.8
20	220303632W002	Microbiology of Agricultural Product Processing	2	0	2	C	3.2
21	220303633W003	Operation Unit	2	1	3	C	4.8
22	220303632W004	Engineering Economics	2	0	2	C	3.2
23	220303633W005	Biochemistry of Agricultural Products	2	1	3	C	4.8
24	220303632W006	Processing Tools and Machines	2	0	2	C	3.2
25	220303632W007	Physical Properties of Agricultural Products	2	0	2	C	3.2
26	220303632W008	Quality Control	2	0	2	C	3.2
27	220303632W009	Chemical Analysis of Agricultural Products	2	0	2	C	3.2
		Total	18	3	21		

Semester 4							
28	220303643W001	Research Methodology	2	1	3	C	4.8
29	220303643W002	Experimental Design	2	1	3	C	4.8
30	220303642W003	Sanitation and Safety in the Food Processing Industry	2	0	2	C	3.2
31	220303642W004	Food Regulation	2	0	2	C	3.2
32	220303643W005	Microbiological Analysis of Agricultural Products	1	2	3	C	4.8
33	220303642W006	Food Nutrition	2	0	2	C	3.2
34	220303642W007	Practical Physico-Chemical Analysis of Agricultural Products	0	2	2	C	3.2
35	220303642W008	Post-Harvest Physiology and Technology	2	0	2	C	3.2
36	220303642W009	Process Technology	2	0	2	C	3.2
		Total	15	6	21		

<i>Semester 5</i>							
37	220303653W001	Food Processing Technology and Agricultural Products	2	1	3	C	4.8
38	220303653W002	Technology for Preserving and Packaging Agricultural Products	2	1	3	C	4.8
39	220303652W003	Entrepreneurship	2	0	2	C	3.2
40	220303652W004	Plant Layout and Design	2	0	2	C	3.2
41	220303652W005	Field Work Practice (PKL)	0	2	2	C	3.2
		Elective Course	16	0	16		
		Total	20	4	24		

<i>Semester 6</i>							
42	220303661W001	Thesis Assitance I	0	1	1	C	1.6
43	220303663W002	Sensory Test	2	1	3	C	4.8
44	220303663W003	Product Development and Marketing	1	2	3	C	4.8
45	220303662W004	Operations Research	2	1	3	C	4.8
		Elective Course	14	0	14	P	
		Total	19	5	24		

<i>Semester 7</i>							
46	220303671W001	Thesis Assitance II	0	1	1	C	1.6
47	MU0000603W007	Seminar	0	2	2	C	3.2
48	220303676W004	Community Service Program (KKN)	0	3	3	C	4.8
		Total	0	6	6		

<i>Semester 8</i>							
49	220303672W003	Thesis	0	6	6	C	9.6
		Total	0	6	6		

		Total Credits (SKS) for completion of Bachelor Program					144
		Total Credits (ECTS) for completion of Bachelor Program					230

*Note: C/E = Cumpulsory or Elective

Table. List of Elective Courses Offered in Odd and Even Semesters

No	Course Code	Odd Semester Elective Courses	SKS	ECTS	Course Code	Even Semester Elective Courses	SKS	ECTS
1	220303652P006	Freshener Technology	2-0	3.2	220303663P005	Fruit and Vegetable Technology	2-0	3.2
2	220303652P007	Quality Management of the Agricultural Products Industry	2-0	3.2	220303662P006	Functional Food Processing Technology	2-0	3.2
3	220303653P008	Legume, Cereal and Tuber Technology	2-1	4.8	220303662P007	Lactic Acid Bacteria Technology	2-1	4.8
4	220303652P009	Palm, Rubber and Tobacco Technology	2-0	3.2	220303663P008	Nutritional Evaluation in Food Processing	2-1	4.8
5	220303653P010	Livestock and Aquatic Products Technology	2-1	4.8	220303663P009	Spice and Essential Oil Technology	2-1	4.8
6	220303652P011	Food Fortification Technology	2-0	3.2	220303663P010	Cake and Bread Technology	2-1	4.8
7	220303652P012	Fermentation Technology	2-0	3.2	220303662P011	Enzyme Technology	2-0	3.2
8	220303652P013	Technology for Handling and Management of Agricultural Industrial Waste	2-0	3.2	220303662P012	Warehouse Management	2-0	3.2

9	220303653P014	Oil and Fat Technology	2-1	4.8	220303662P013	Technology and Management of Catering Services	2-0	3.2
10	220303652P015	Food Additives	2-0	3.2	220303662P014	Sugar and Polysaccharide Technology	2-0	3.2
11		Industrial Internship/Humanitarian Assignment/Village Building/Entrepreneurship (MBKM Free Form)	2-20		220303662P015	Halal Food Technology and Management	2-0	3.2
12						Industrial Internship/Humanitarian Assignment/Village Building/Entrepreneurship (MBKM Free Form)	2-20	

Note: 1 Credit = 1.59 ECTS

According to Rector decree Number 3908, year 2020, for SKS National Credit Conversion to Europe Credit (ECTS)

2. Plan to Implement the Right to Learn a Maximum of 3 Semesters Outside the Study Program

Course Learning (MK) outside the Study Program (PS)				
No	Going through MK	Maximum credit weight		Information
1	At another PS within the college	8		The MK taken has the same total credit weight, has appropriate PLO and
2	At the same PS at another college	8-20		The MK taken has the same total credit weight, through the MK agreed upon by a similar PS MOU.
3	At a different PS at another university	4-20		The MK taken has the same total credit weight, has PLO suitability and additional competencies
	Maximum total credit weight	20		
Forms of learning activities outside the campus/university				
No	Forms of Learning Activities	Implementation of learning credits weight		Information
		Reguler	MBKM	
1	KP/Internship	2	≤20	MBKM Internship activities can be converted to several MK that have appropriate PLO and learning activity times that match the weight of the MK credits.
2	Thematic KKN/KKN	2	≤20	MBKM KKNT activities which are an extension of Regular KKN- can be converted to several MK which have PLO compatibility and learning activity times that match the weight of the MK credits.
3	Entrepreneurship	2	≤20	MBKM Entrepreneurship activities can be converted to several MK that have PLO compatibility and study activity time that matches the weight of the MK credits, including Entrepreneurship MK if any.

Advanced

No	Bentuk Kegiatan Pembelajaran	Pelaksanaan pembelajaran Bobot SKS		Keterangan
		Reguler	MBKM	
4	Teaching assistant in the Education Unit (AMSP)	4	≤ 20	AMSP MBKM activities can be converted to several MK that have appropriate PLO and learning activity times that match the weight of the MK credits.
5	Research		≤ 20	Can be converted to several MK that have appropriate PLO and learning activity times that match the weight of the MK credits.
6	Independent Study/Project		≤ 20	Can be converted to several MK that have appropriate PLO and learning activity times that match the weight of the MK credits.
7	Humanitarian project		≤ 20	Can be converted to several MK that have appropriate PLO and learning activity times that match the weight of the MK credits.
8	Student Exchange		≤ 20	Can be converted to several MK that have appropriate PLO and learning activity times that match the weight of the MK credits.
9	National Defense		≤ 20	Can be converted to several MK that have appropriate PLO and learning activity times that match the weight of the MK credits.

1. Management and Curriculum implementation mechanism

Planning

Curriculum implementation planning is based on the Unmul Education Standards Document which is equipped with other supporting tools in the form of: educational guidebook/academic regulations, academic calendar, lecture-practicum schedule, teaching decree, list of lecture facilities/infrastructure, learning tools (RPS, lecture contract).

Preparation for the implementation of learning is carried out through lecturer meetings at the Study Program level with the aim of dividing the courses that will be taught by each lecturer based on scientific field groups. The preparation and updating of the RPS is adjusted to the course syllabus and prepared by the lecturer in charge of the course. Next, the RPS document that has been prepared/updated will be submitted to the PS for ratification. The faculty holds regular meetings every semester to finalize required documents such as teaching decrees, lists of learning facilities and infrastructure, academic calendars and lecture-practicum schedules. This series of activities is carried out 1 to 2 months before the first week of lectures begins.

Implementation

Implementation of the curriculum refers to the Unmul Education Standards Document. The implementation of the curriculum is carried out based on the RPS prepared by the lecturer team, taking into account the achievement of PLO at the MK level. Sub-CPMK and CPMK at the course level are designed to support the achievement of the PLO imposed on each course. Tools that support implementation include student attendance lists, lecturer attendance lists, minutes of lecture schedule changes, lecture facility/infrastructure checklists, data on the results of lecture activities which include student attendance, lecturers in lectures, as well as suitability of lecture material to students' grades, as well as work instructions. related to KKN, PKL and also Practicum. Furthermore, the suitability of the RPS contents and the realization of learning will be evaluated by students, academic departments, lecturers, PS leaders and faculties, so that if discrepancies are found it will be used as evaluation material in the following academic year.

2. Semester Learning Plan (RPS)

The RPS document for the Agricultural Product Technology Study Program, Faculty of Agriculture, is prepared and attached separately from the curriculum document but is part of the entire study program curriculum document. Access to RPS BPAPT can be seen at the following link: <https://bit.ly/RPSTHP2022>.

3. Evaluation of Curriculum of study program

Curriculum evaluation is carried out every year or before entering a new academic year to see the suitability of the curriculum used with the needs of graduate users and to see the need for supporting learning activities. *softskill* and *hard skills* student. Apart from that, evaluations are also carried out on forms of learning, learning methods, assessment methods, RPS and supporting learning tools. Evaluation materials used as curriculum development such as the structure of professional courses, development of teaching materials/sub-materials in courses, development of students' basic substance skills as well as implementation of learning activities online, offline and *blended learning*. The results of the curriculum evaluation were found to be a forum for meeting campus and stakeholder needs, as well as fulfilling the development of Science and Technology (IPTEK) in the field of Agricultural Product Technology.

Evaluation is carried out in two stages, namely the formative stage and the summative stage. Formative evaluation by paying attention to PLO achievement. PLO achievement is carried out through CPMK and Sub-CPMK achievements, which are determined at the beginning of the semester by the lecturer/lecturer team and the Study Program. Evaluation is also carried out on learning forms, learning methods, assessment methods, RPS and supporting learning tools. Summative evaluations are carried out periodically every 4-5 years, involving internal and external stakeholders, and reviewed by experts in the study program, industry, associations, and according to developments in science and technology and user needs.

Evaluation of the implementation of the curriculum for the Agricultural Product Technology Study Program, Faculty of Agriculture, Mulawarman University refers to the Unmul Education Standards Document. At the end of each semester, the university evaluates lecturers' performance in lectures and practicums (EDOM). Then the EDOM results are given by GJMF to each PS to be used as material for evaluation meetings at the PS level. The evaluation process is also carried out through an Internal Quality Audit (AMI) carried out by the Mulawarman University Educational Development and Quality Assurance Institute (LP3M Unmul) which is accompanied by the Agriculture Faculty Quality Assurance Group (GJMF) and the PS THP Quality Assurance Unit (UJM) which is carried out every year. AMI's activities are aimed at evaluating, correcting and at the same time continuously improving the quality of educational process standards which is a form of implementation of PPEPP (Determination, Implementation, Evaluation, Control and Improvement). The AMI results were then followed up through FGDs with the BPAPT lecturer team and preparing a SWOT analysis so that the strategies that would be taken could overcome challenges and minimize the impact of weaknesses in the BPAPT curriculum.