

OBJECTIVE – MODULE MATRIX
BACHELOR OF FOOD AND AGRICULTURAL PRODUCT
TECHNOLOGY (BFAPT)

Matriks Capaian Pembelajaran Luaran – Mata Kuliah
Program Studi S1 - Teknologi Pangan dan Hasil Pertanian (S1 - TPHP)



FACULTY OF AGRICULTURAL TECHNOLOGY
UNIVERSITAS GADJAH MADA

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Preface

The curriculum framework for higher education institutions in Indonesia undergoes regular updates, as it requires careful planning, implementation, and continuous evaluation to stay aligned with advancements in science, technology, and the arts. Additionally, curricula are tailored to meet competencies demanded by contemporary society. In Indonesia, curriculum development for higher education must adhere to the Indonesian National Qualifications Framework ([Kerangka Kualifikasi Nasional Indonesia](#), or KKNI) and the National Standards for Higher Education ([Standar Nasional Pendidikan Tinggi](#)).

To assist higher education institutions with curriculum development, the General Directorate of Learning and Student Affairs (*Direktorat Jenderal Pembelajaran dan Kemahasiswaan*) has introduced a framework that centers on defining Programme Learning Outcomes (PLOs), or *Capaian Pembelajaran Lulusan*. These PLOs serve as the target competencies for graduates and are essential for shaping curriculum objectives. In this document, we outline the PLOs as the primary objectives for the Bachelor of Food and Agricultural Product Technology (BFAPT) program. Each module within the BFAPT curriculum has been carefully designed to align with the specified PLOs.

The PLOs of the BFAPT program are organized into four qualifications: Attitude (*sikap*), Knowledge (*pengetahuan*), General Skills (*kemampuan umum*), and Specific Skills (*kemampuan khusus*). The alignment between program modules and these competencies is presented in detail in the matrix provided in this document.



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List of Programme Learning Outcomes

Code	Programme Learning Outcomes
Attitude or <i>Sikap</i> (S)	
S1	• Show awareness of Pancasilaist attitudes, understanding the importance of the nation and state, and respecting cultural diversity
S2	• Demonstrate social sensitivity, honesty, responsibility, self-confidence, emotional maturity, ethics, law-abiding behaviour, and awareness of lifelong learning.
Knowledge or <i>Pengetahuan</i> (P)	
P1	• Be able to explain the structure and properties of food components / agricultural products (carbohydrates, proteins, lipids, water, other components, and food additives) and chemical changes that occur during processing
P2	• Be able to explain microbes in food, both beneficial, pathogenic, and destructive, as well as the influence of the food system on their growth, survival, and control
P3	• Be able to evaluate hazards (physical, chemical, and microbiological) associated with food systems, including their transmission and control
P4	• Be able to use the principles of food engineering, food preservation and processing, packaging materials and methods, cleaning and sanitation, and water and waste management
P5	• Be able to apply methods to assess the sensory properties of food
P6	• Be able to apply the principles of food quality control and food quality assurance
P7	• Be able to apply regulations needed for food products processing and marketing
P8	• Be able to evaluate changes in nutrients during processing, storage, and metabolism of nutrients and bioactive components
General Skills or <i>Keterampilan Umum</i> (KU)	
KU1	• Be able to analyze data and make decisions in order to show independent and group performance to apply knowledge in social life
KU2	• Be able to argue scientifically, think logically, critically, systematically, and innovatively by utilizing information technology to produce solutions in the field of food and agricultural products technology
KU3	• Be able to communicate scientifically both orally and in writing
Specific Skills or <i>Keterampilan Khusus</i> (KK)	
KK1	• Be able to manage organizations and projects, and have the essential skills to work and interact with people from diverse backgrounds
KK2	• Be able to design sustainable food processing units and agricultural products



A. Objectives regarding attitude

Programme Learning Outcomes									
Attitude or <i>Sikap</i> 1 (A1)						Attitude or <i>Sikap</i> 2 (A2)			
Show awareness of Pancasilaist attitudes, understanding the importance of the nation and state, and respecting cultural diversity						Demonstrate social sensitivity, honesty, responsibility, self-confidence, emotional maturity, ethics, law-abiding behaviour, and awareness of lifelong learning.			
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits	
			SKS	ECTS				SKS	ECTS
VIII	-					UNU222001	C	4	6
						UNU222002	C	2	3
						UNU222003	C	2	3
VII	-					TPHP214101	C	6	9
						TPHP214102	C	8	12
						TPHP214203	C	8	12
						TPHP214104	C	6	9
VI	-					-			
V	-					-			
IV	UNU 1000-1005	C	2	3	Theology	-			
	UNU 3000	C	2	3	Civics				
	UNU 161	C	2	3	Indonesian				
	UNU 1100	C	2	3	Pancasila				
III	-					-			
II	-					-			
I	-					-			

C: compulsory modules; E: elective modules.



B. Objectives regarding knowledge

Programme Learning Outcomes										
Knowledge or <i>Pengetahuan</i> 1 (P1)						Knowledge or <i>Pengetahuan</i> 2 (P2)				
Be able to explain the structure and properties of food components / agricultural products (carbohydrates, proteins, lipids, water, other components, and food additives) and chemical changes that occur during processing						Be able to explain microbes in food, both beneficial, pathogenic, and destructive, as well as the influence of the food system on their growth, survival, and control				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS	
VIII	-					-				
VII	-					-				
VI	TPHP213211	E	2	3	Post-Harvest Physiology and Technology	TPHP213207	C	2	3	Preservation Technology
						TPHP213213	C	2	3	Food Biotechnology
V	TPHP213115	E	2	3	Enzyme Technology	TPHP213114	E	2	3	Industrial Microbiology
	TPHP213116	E	2	3	Food and Agricultural Product Analysis II	TPHP213117	E	2	3	Fermentation Technology
						TPHP213118	E	1	1.5	Fermentation Technology - Laboratory Practice
IV	TPHP212205	C	3	4.5	Food and Agricultural Product Analysis I	-				
	TPHP212206	C	2	3	Food and Agricultural Product Analysis I - Laboratory Practice					
III	TPHP212103	C	2	3	Food and Agricultural Product Chemistry	TPHP212101	C	3	4.5	Food Microbiology
						TPHP212102	C	1	1.5	Food Microbiology - Laboratory Practice
II	TPHP211203	C	3	4.5	Chemistry II (Organic)	TPHP211201	C	2	3	Microbiology
						TPHP211202	C	1	1.5	Microbiology - Laboratory Practice
						TPHP211204	C	3	4.5	Biochemistry
I	TPHP211102	C	3	4.5	Chemistry I (Inorganic)	TPHP211101	C	3	4.5	Cell Biology
	TPHP211103	C	1	1.5	Chemistry - Laboratory Practice					
	TPHP211104	C	2	3	Physical Chemistry					
	TPHP211106	C	2	3	Physics					
	TPHP211107	C	1	1.5	Physics - Laboratory Practice					

C: compulsory modules; E: elective modules.



Programme Learning Outcomes										
Knowledge or <i>Pengetahuan</i> 3 (P3)						Knowledge or <i>Pengetahuan</i> 4 (P4)				
Be able to evaluate hazards (physical, chemical, microbiological) associated with food systems, their transmission and control						Be able to use the principles of food engineering, food preservation and processing, packaging materials and methods, cleaning and sanitation, and water and waste management				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS	
VIII	-					-				
VII	-					-				
VI	-					TPHP213206	C	2	3	Packaging Technology
						TPHP213207	C	2	3	Preservation Technology
						TPHP213208	E	2	3	Fruit and Vegetable Technology
						TPHP213209	E	2	3	Cane Sugar Technology
						TPHP213212	E	2	3	Flavor Technology
V	TPHP213103	C	2	3	Food Safety	TPHP213113	E	2	3	Oil and Fat Technology
						TPHP213111	E	3	4.5	Coffee, Tea, and Cocoa Processing Technology
						TPHP213110	E	2	3	Rubber and Tobacco Technology
						TPHP213112	E	2	3	Spice and Seasoning Technology
IV	-					TPHP212201	C	2	3	Food Industrial Sanitation
						TPHP212203	C	1	1.5	Unit Operation - Laboratory Practice
						TPHP212204	C	2	3	Engineering Economics
						TPHP212207	E	2	3	Dairy Products Technology
						TPHP212208	E	2	3	Bakery Technology
III	-					TPHP212104	C	2	3	Thermal Process
						TPHP212105	C	3	4.5	Unit Operation II
						TPHP212106	C	3	4.5	Unit Operation III
						TPHP212110	E	2	3	Meat and Fish Technology



	Programme Learning Outcomes									
	Knowledge or <i>Pengetahuan</i> 3 (P3)					Knowledge or <i>Pengetahuan</i> 4 (P4)				
	Be able to evaluate hazards (physical, chemical, microbiological) associated with food systems, their transmission and control					Be able to use the principles of food engineering, food preservation and processing, packaging materials and methods, cleaning and sanitation, and water and waste management				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS	
II	-					TPHP212111	E	2	3	Legume, Cereals, and Tuber Technology
						TPHP212104	C	2	3	Thermal Process
						TPHP211205	C	3	4.5	Unit Operation I
						TPHP211206	C	3	4.5	Applied Mathematics
						TPHP211209	C	3	4.5	Waste Management
						TPHP211210	C	1	1.5	Waste Management - Laboratory Practice
I	-					TPHP211105	C	2	3	Introduction to Agricultural Technology
						TPHP211106	C	2	3	Physics
						TPHP211107	C	1	1.5	Physics - Laboratory Practice
						TPHP211108	C	2	3	Mathematics
						TPHP211110	C	2	3	Material Properties of Foods and Agricultural Products

C: compulsory modules; E: elective modules.



	Programme Learning Outcomes									
	Knowledge or <i>Pengetahuan</i> 5 (P5)					Knowledge or <i>Pengetahuan</i> 6 (P6)				
	Be able to apply methods to assess the sensory properties of food					Be able to apply the principles of food quality control and food quality assurance				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS	
VIII	-					-				
VII	-					-				
VI	-					-				
V	TPHP213104	C	2	3	Sensory Evaluation	TPHP213106	E	2	3	Quality Management
	TPHP213105	C	1	1.5	Sensory Evaluation - Laboratory Practice					
IV	-					TPHP212202	C	2	3	Quality Control
III	TPHP211207	C	3	4.5	Statistics	-				
II	-					-				
I	-					-				

C: compulsory modules; E: elective modules.



	Programme Learning Outcomes									
	Knowledge or <i>Pengetahuan</i> 7 (P7)					Knowledge or <i>Pengetahuan</i> 8 (P8)				
	Be able to apply regulations needed for food products processing and marketing					Be able to evaluate changes in nutrients during processing, storage, and metabolism of nutrients and bioactive components				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS	
VIII	-					-				
VII	-					-				
VI	-					TPHP213214	E	2	3	Food and Nutrition Design
V	-					TPHP213107	C	2	3	Functional Foods
						TPHP213108	E	2	3	Nutrient Formulation and Fortification
						TPHP213109	E	2	3	Indonesian Gastronomy
IV	-					-				
III	-					TPHP212109	C	3	4.5	Nutrition
						TPHP212107	C	2	3	Nutrition Evaluation in Food Processing
						TPHP212108	C	1	1.5	Nutrition Evaluation in Food Processing - Laboratory Practice
II	TPHP211208	C	2	3	Food Regulation	TPHP211204	C	3	4.5	Biochemistry
I	-					-				

C: compulsory modules; E: elective modules.



C. Objectives regarding general skills

Programme Learning Outcomes															
	General Skills or <i>Keterampilan Umum</i> 1 (KU1)					General Skills or <i>Keterampilan Umum</i> 2 (KU2)					General Skills or <i>Keterampilan Umum</i> 3 (KU3)				
	Be able to analyze data and make decisions in order to show independent and group performance to apply knowledge in social life					Be able to argue scientifically, think logically, critically, systematically, and innovatively by utilizing information technology to produce solutions in the field of food and agricultural products technology					Be able to communicate scientifically both orally and in writing				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS				SKS	ECTS	
VIII											UNU222001	C	4	6	Community Service
											UNU222002	C	2	3	Community Communication
											UNU222003	C	2	3	Application of Appropriate Technology
VII	TPHP214101	C	6	9	Research	TPHP214101	C	6	9	Research	TPHP214101	C	6	9	Research
	TPHP214102	C	8	12	Entrepreneurs hip II	TPHP214102	C	8	12	Entrepreneurs hip II	TPHP214102	C	8	12	Entrepreneurship II
	TPHP214103	C	8	12	Industrial Internship II	TPHP214103	C	8	12	Industrial Internship II	TPHP214103	C	8	12	Industrial Internship II
	TPHP214104	C	6	9	Independent Project	TPHP214104	C	6	9	Independent Project	TPHP214104	C	6	9	Independent Project
VI	TPHP213205	C	3	4.5	Industrial Internship I	TPHP213210	E	2	3	Food Service Management	TPHP213204	C	2	3	Seminar
	TPHP213201	C	2	3	Entrepreneurs hip I	TPHP213205	C	3	4.5	Industrial Internship I	TPHP213205	C	3	4.5	Industrial Internship I
	TPHP213215	E	2	3	Current Topics II	TPHP213201	C	2	3	Entrepreneurs hip I	TPHP213215	E	2	3	Current Topics II
	TPHP213216 TPHP213217	E	1	1.5	Special Topics II	TPHP213215	E	2	3	Current Topics II	TPHP213216 TPHP213217	E	1	1.5	Special Topics II Special Topics IV



	Programme Learning Outcomes														
	General Skills or <i>Keterampilan Umum</i> 1 (KU1)					General Skills or <i>Keterampilan Umum</i> 2 (KU2)					General Skills or <i>Keterampilan Umum</i> 3 (KU3)				
	Be able to analyze data and make decisions in order to show independent and group performance to apply knowledge in social life					Be able to argue scientifically, think logically, critically, systematically, and innovatively by utilizing information technology to produce solutions in the field of food and agricultural products technology					Be able to communicate scientifically both orally and in writing				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS				SKS	ECTS	
					Special Topics IV										
	TPHP213218 TPHP213219 TPHP213221	E	2	3	Special Topics VI Special Topics VIII Special Topics XII	TPHP213216 TPHP213217	E	1	1.5	Special Topics II Special Topics IV	TPHP213218 TPHP213219 TPHP213220 TPHP213221	E	2	3	Special Topics VI Special Topics VIII Special Topics X Special Topics XII
	TPHP213222 TPHP213223 TPHP213224	E	3	4.5	Special Topics XIV Special Topics XVI Special Topics XVIII	TPHP213218 TPHP213219 TPHP213220 TPHP213221	E	2	3	Special Topics VI Special Topics VIII Special Topics X Special Topics XII	TPHP213222 TPHP213223 TPHP213224	E	3	4.5	Special Topics XIV Special Topics XVI Special Topics XVIII
						TPHP213222 TPHP213223 TPHP213224	E	3	4.5	Special Topics XIV Special Topics XVI Special Topics XVIII					
	V	TPHP213102	C	2	3	Research Methodology	TPHP213119	E	2	3	Current Topics I	TPHP213102	C	2	3



	Programme Learning Outcomes														
	General Skills or <i>Keterampilan Umum</i> 1 (KU1)					General Skills or <i>Keterampilan Umum</i> 2 (KU2)					General Skills or <i>Keterampilan Umum</i> 3 (KU3)				
	Be able to analyze data and make decisions in order to show independent and group performance to apply knowledge in social life					Be able to argue scientifically, think logically, critically, systematically, and innovatively by utilizing information technology to produce solutions in the field of food and agricultural products technology					Be able to communicate scientifically both orally and in writing				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS				SKS	ECTS	
					and Experimental Design										and Experimental Design
	TPHP213119	E	2	3	Current Topics I	TPHP213120 TPHP213121	E	1	1.5	Special Topics I Special Topics III	TPHP213119	E	2	3	Current Topics I
	TPHP213120 TPHP213121	E	1	1.5	Special Topics I Special Topics III	TPHP213122 TPHP213123 TPHP213124 TPHP213125	E	2	3	Special Topics V Special Topics VII Special Topics IX Special Topics XI	TPHP213120 TPHP213121	E	1	1.5	Special Topics I Special Topics III
	TPHP213122 TPHP213123 TPHP213124 TPHP213125	E	2	3	Special Topics V Special Topics VII Special Topics IX Special Topics XI	TPHP213126 TPHP213127 TPHP213128	E	3	4.5	Special Topics XIII Special Topics XV Special Topics XVII	TPHP213122 TPHP213123 TPHP213124 TPHP213125	E	2	3	Special Topics V Special Topics VII Special Topics IX Special Topics XI
	TPHP213126	E	3	4.5	Special Topics XIII						TPHP213126	E	3	4.5	Special Topics XIII



	Programme Learning Outcomes														
	General Skills or <i>Keterampilan Umum</i> 1 (KU1)					General Skills or <i>Keterampilan Umum</i> 2 (KU2)					General Skills or <i>Keterampilan Umum</i> 3 (KU3)				
	Be able to analyze data and make decisions in order to show independent and group performance to apply knowledge in social life					Be able to argue scientifically, think logically, critically, systematically, and innovatively by utilizing information technology to produce solutions in the field of food and agricultural products technology					Be able to communicate scientifically both orally and in writing				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS				SKS	ECTS	
	TPHP213127				Special Topics XV						TPHP213127				Special Topics XV
	TPHP213128				Special Topics XVII						TPHP213128				Special Topics XVII
IV	-					-					-				
III	-					-					-				
II	TPHP211207	C	3	4.5	Statistics	-					TPHP211207	C	3	4.5	Statistics
I	-					-					TPHP211109	C	2	3	English for Food Technology

C: compulsory modules; E: elective modules.



D. Objectives regarding specific skills

	Programme Learning Outcomes									
	Specific Skills or <i>Keterampilan Khusus</i> 1 (KK1)					Specific Skills or <i>Keterampilan Khusus</i> 2 (KK2)				
	Be able to manage organizations and projects, and have the essential skills to work and interact with people from diverse backgrounds					Be able to design sustainable food processing units and agricultural products				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS	
VIII	UNU222001	C	4	6	Community Service	-				
	UNU222002	C	2	3	Community Communication					
	UNU222003	C	2	3	Application of Appropriate Technology					
VII	TPHP214101	C	6	9	Research	-				
	TPHP214102	C	8	12	Entrepreneurship II					
	TPHP214203	C	8	12	Industrial Internship II					
	TPHP214104	C	6	9	Independent Project					
VI	TPHP213205	C	3	4.5	Industrial Internship I	TPHP213202	C	2	3	Product Development and Process Technology
	TPHP213215	E	2	3	Current Topics II	TPHP213203	C	3	4.5	Product Development and Process Technology - Laboratory Process
	TPHP213216 TPHP213217	E	1	1.5	Special Topics II Special Topics IV					
	TPHP213218 TPHP213219 TPHP213220 TPHP213221	E	2	3	Special Topics VI Special Topics VIII Special Topics X Special Topics XII					
	TPHP213222 TPHP213223 TPHP213224	E	3	4.5	Special Topics XIV Special Topics XVI Special Topics XVIII					
V	TPHP213119	E	2	3	Current Topics I	TPHP213101	C	3	4.5	Plant Design
	TPHP213120 TPHP213121	E	1	1.5	Special Topics I Special Topics III					
	TPHP213122 TPHP213123	E	2	3	Special Topics V Special Topics VII					



	Programme Learning Outcomes									
	Specific Skills or <i>Keterampilan Khusus</i> 1 (KK1)					Specific Skills or <i>Keterampilan Khusus</i> 2 (KK2)				
	Be able to manage organizations and projects, and have the essential skills to work and interact with people from diverse backgrounds					Be able to design sustainable food processing units and agricultural products				
Sem.	Code	C / E	Credits		Module	Code	C / E	Credits		Module
			SKS	ECTS				SKS	ECTS	
	TPHP213123	E	3	4.5	Special Topics IX					
	TPHP213125				Special Topics XI					
	TPHP213126				Special Topics XIII					
	TPHP213127				Special Topics XV					
	TPHP213127				Special Topics XVII					
IV	-					TPHP212204	C	2	3	Engineering Economics
III	-					-				
II	-					TPHP211209	C	3	4.5	Waste Management
I	-					-				

C: compulsory modules; E: elective modules.