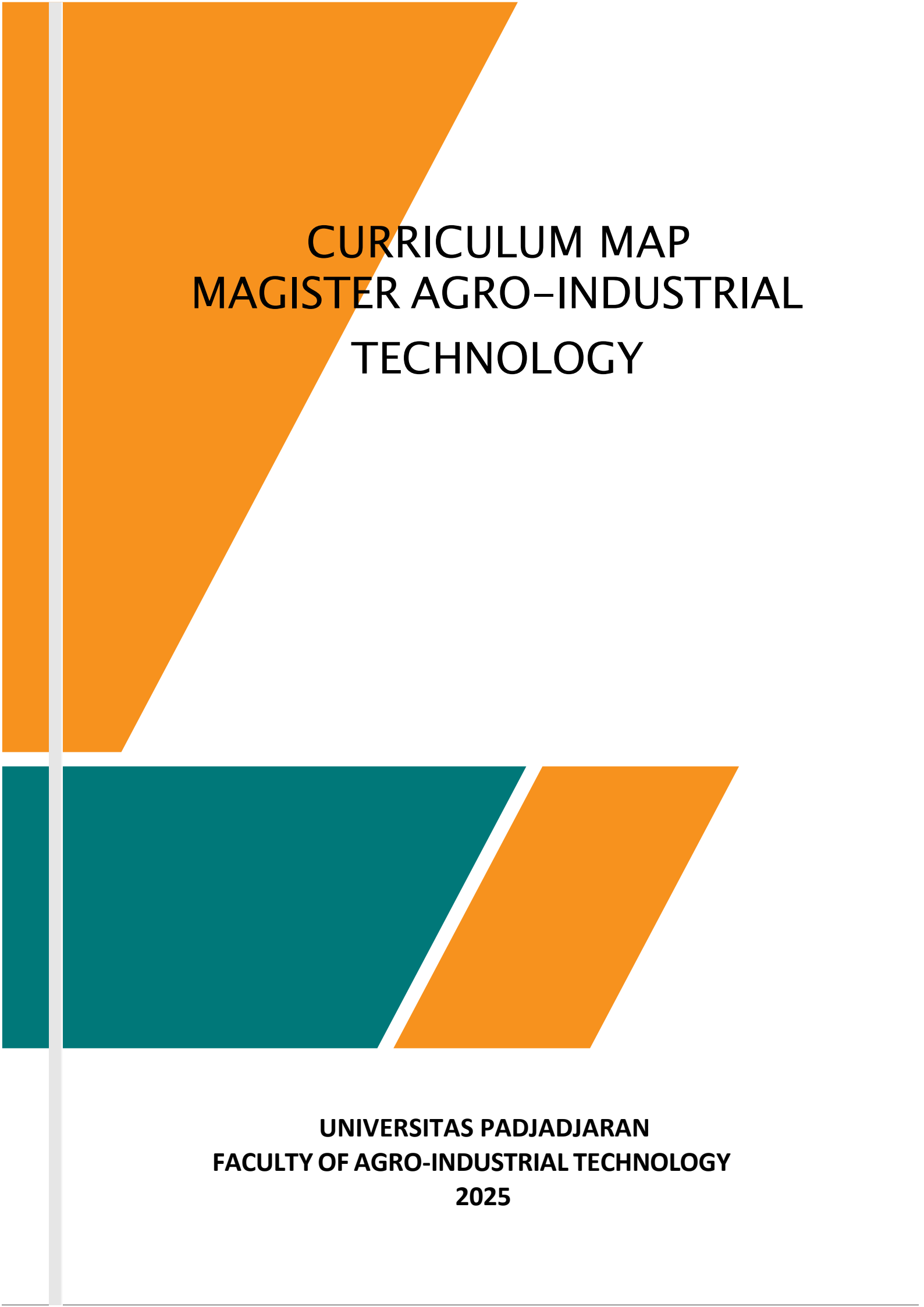


The cover features a minimalist design with large, overlapping geometric shapes. A large orange shape occupies the top-left and top-right areas, while a teal shape is positioned in the bottom-left. A white diagonal line separates the orange and teal sections. The title is centered in the white space.

CURRICULUM MAP MAGISTER AGRO-INDUSTRIAL TECHNOLOGY

**UNIVERSITAS PADJADJARAN
FACULTY OF AGRO-INDUSTRIAL TECHNOLOGY
2025**

MAGISTER AGRO-INDUSTRIAL TECHNOLOGY STUDY PROGRAM

Vision

MTA Vision: To become a study program that has a high commitment to professionalism and excellence in education and research in the field of environmentally friendly agro-industrial technology that is recognized nationally and internationally in 2026

Mission

MTA Mission: Producing quality, innovative, dynamic and superior graduates and developing research in the field of agricultural technology to support the development of industrial-cultured, environmentally-minded and sustainable agriculture by applying advanced agro-industrial knowledge (practical/applied knowledge), which supports work graduates to develop careers in various fields related to the agricultural industry

Profile education

Profile	Program Learning Outcome (PLO) /Profile Education Objectives (PEO)
Businessmen	Graduates of the Master of Agro-industrial Technologist have the ability to identify and manage creatively various opportunities and surrounding resources to create added value in a sustainable manner
manager	Graduates of the Master of Agro-industrial Technology are able to work effectively and harmoniously with others within the organization and outside the organization in the field of agricultural and food machine tools/soil and water engineering/food technology/post-harvest technology/food security to optimize agricultural resources
Researcher	Graduates of the Master of Agro-industrial Technology are able to act as professional researchers and scientists who are able to develop knowledge with appropriate methods in accordance with the capabilities and progress of science and technology through a series of valid methods
Lecturer/educationalist	Graduates of the Master of Agro-industrial Technology are capable of disseminating knowledge using appropriate learning methods in accordance with the capabilities and progress of science and technology
Consultant	Graduates of the Master of Agro-industrial Technology have expertise in the field of agro-industrial technology who are able to provide consulting services on problems in the field of agro-industrial technology

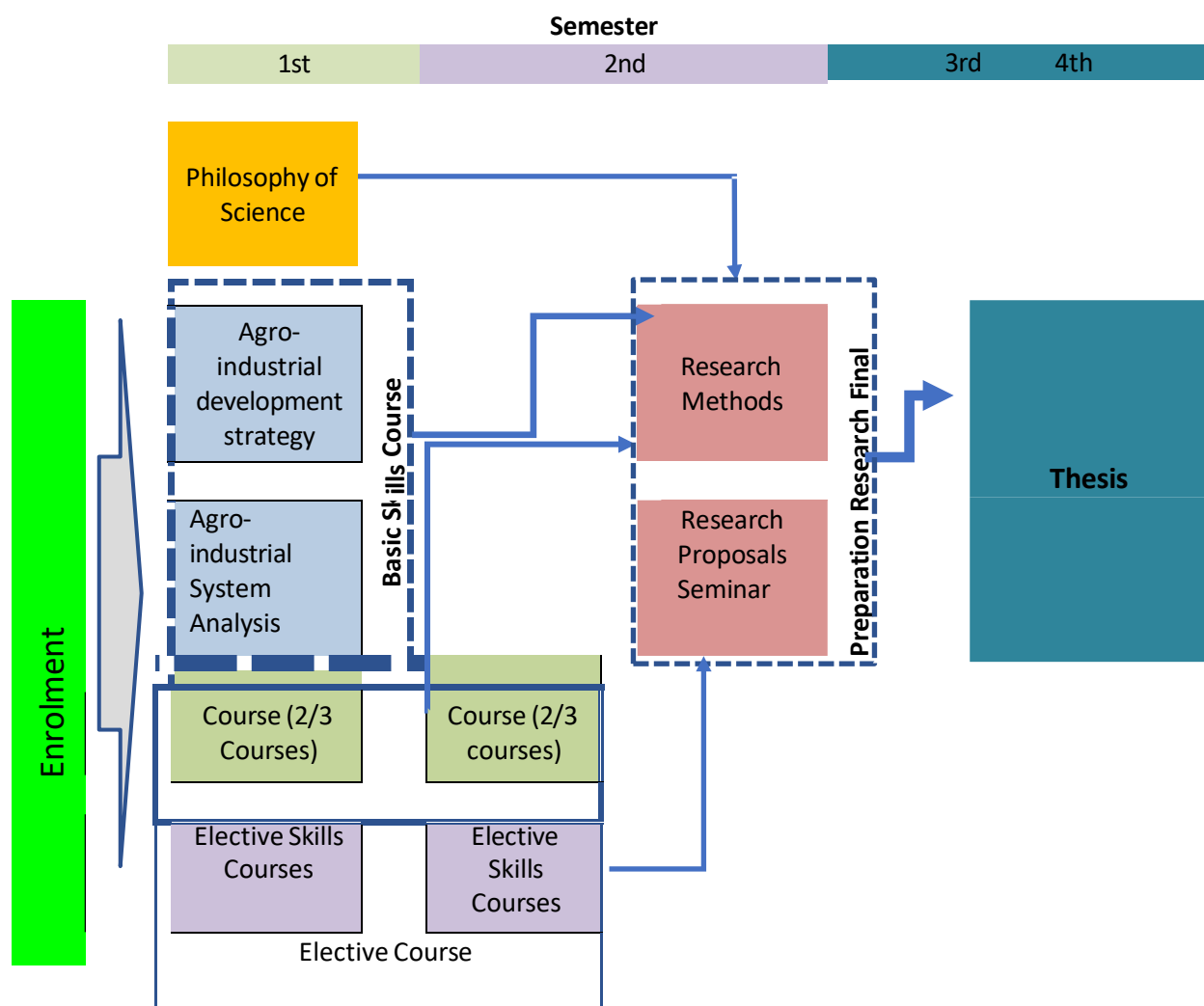
bureaucrat in Agro-industrial fields	Graduates of the Master of Agro-industrial Technology are able to occupy the profession as civil servants and government employees with an agreement with duties according to their duties and functions based on laws and regulations with discipline and a sense of responsibility
Analyse/auditor	graduates of the Master of Agro-industrial Technology have the expertise and qualifications to carry out data checking and data analysis of a job in the field of agricultural and food machine tools/soil and water engineering/food technology/post-harvest technology/food security
Non-Government employment	Graduates of the Master of Agro-industrial Technology are able to become non-government employees with a work agreement at the agency with assignments related to the field of agricultural and food machine tools/soil and water engineering/food technology/post-harvest technology/food security with discipline and responsibility

Learning Outcome of Magister Agro-industrial Technology Study Program

Graduates of the Master of Agro-industrial Technology have knowledge and understanding of concepts and theories and developments in the field of agro-industrial technology through academic ethics	LO1
Graduates of the Master of Agro-industrial Technology master engineering theory, scientific development and optimizing the application of technology according to scientific policies and ethics in the field of agro-industrial technology	LO2
Graduates of the Master of Agro-industrial Technology have the ability to formulate, recognize and provide alternative solutions through suitable methods related to problems in the scientific field of agro-industrial technology	LO3
The Master of Agro-industrial Technology ter graduates have the ability to understand concepts and theories to design, implement and evaluate scientifically and communicate academically	LO4
graduates of the master of agro-industrial technology are able to explore the roots of problems through a research process to independently formulate appropriate methods and approaches	LO5
graduates of the Master of Agro-industrial Technology are able to analysed, conclude and formulate integrated problem solving in the field of agro-industrial technology	LO6

graduates of the Master of Agro-industrial Technology are able to integrate theory and practice based on theory, models and methods for the effective implementation of problems in society	LO7
The graduated Master of Agro-industrial Technology has the ability to communicate, collaborate and publish on society and the environment	LO8

Curriculum Map of Magister Agro-industrial technology



Detail Curriculum on Concentration

1. Soil and Water Engineering Concentration
 - a. Course List on Soil Water Engineering Concentration

Main Courses

Semester 1st

No	Code	courses	ECTS
1	UNX 692	Philosophy of science	3.2
2	N20A241001	Strategy Agro-industrial Development Strategy	4.8
3	N20A241002	Agro-industrial system analysis	4.8
4	N20A241006	Soil and water conservation engineering	4.8
5	N20A241005	Measurement and Instrumentation	4.8
6	N20A242023	Watershed management technique	4.8
7		Elective Courses	4.8*
Total:			

Semester 2nd

No	Code	courses	ECTS
1	UNX 24693	Research methodology	4.8
2	UNX24 680	Statistical analysis	4.8
3	N20A2022	Advanced Irrigation and drainage Engineering	4.8
4	UNX24796	Seminar of Research proposal	4.8
5	N20A3024	Development of regional specific technology	4.8
		Elective Courses	9.6*
Total:			

Semester 3rd

No	Code	Courses	ECTS
1	UNX24897	Progress Research Seminar	9.6
Total:			9.6

Semester 4th

No	Code	Courses	ECTS
1	UNX 998	Final Magister Seminar	14.4
Total:			14.4

Elective Courses*)

Semester 1st

No	Code	Courses	ECTS
1	N20A242020	Management of natural resources	4.8
2	N20A241004	Advanced optimization Technique	4.8
3	N20A242021	Water resource Planning	4.8
4	N20A242021	Advanced soil and traction Dynamic	4.8

Semester 2nd

No	Code	Courses	ECTS
1	N20A242022	Water quality	4.8
2	N2A3026	Hydro climate Modelling	4.8

b. Curriculum Map of Soil and Water Engineering Concentration

Course Status	Semester							
	1st	ECTS	2nd	ECTS	3rd	ECTS	4th	ECTS
Compulsory Course	Philosophy of Science	3.2	statistical analysis	3.2	Progress Research Seminar	9.6	Final Master Seminar	14.4
	Agro-industrial development strategy	4.8	advanced irrigation and	4.8				
			drainage engineering					
	Agro-industrial system analysis	4.8	Seminar research proposals	4.8				
	Advance Soil and Water Conservation	4.8	Research Methodology	4.8				
	measurement and instrumentation	4.8	Development Technology of Regional Specific Area	4.8				
Elective Course	Watershed management Technique	4.8						
	Management of Natural resources	4.8	Advanced optimization technique	4.8				
	Advanced optimization technique	4.8	Hydro-climate modelling	4.8				
	water resources planning	4.8	Water Quality	4.8				
	Advanced soil dynamics and traction	4.8						

2. Agricultural and Food Machinery and Equipment

a. Course List of Agricultural and Food Machinery and Equipment Concentration

Main Courses

Semester 1st			
No	Course Code	Courses	ECTS
1	UNX692	Philosophy of science	3.2
2	N20A241001	Agro-industrial Development Strategy	4.8
3	N20A241002	Agro-industrial system analysis	4.8
4	N20A241003	Agricultural product characteristic	4.8
5	N20A241004	Advanced optimization Technique	4.8
6	N20A241005	Measurement and Instrumentation	4.8
7		Elective courses	4.8
Totals:			

Semester 2nd			
No	Course Code	Courses	ECTS
1	UNX24693	Research Methodology	3.2
2	N20A242008	Management of Food and agricultural machinery	3.2
3	N20A242009	Agro-industrial equipment and machinery	3.2
4	N20A242018	Dynamic of Machinery	3.2
5	UNX24796	Seminar of Research proposal	1.6
Elective Courses			9.6*
Total :			

Semester 3rd			
No	Course Code	courses	ECTS
1	UNX24897	Progress Reseach Seminar	9.6
Totals:			9.6

Semester 4th			
No	Course Code	courses	ECTS
1	UNX24898	Final Master Seminar	14.4
Totals:			14.4

Elective course*)

Semester 1st			
No	Course Code	courses	Credits
1	N20A242012	Numerical Method	4.8
2	N20A242013	Advanced soil and traction Dynamic	4.8
3	N20A243019	Thermal system Design	4.8
4	N20A242015	Green house technology	4.8
5	N20A242016	Smart system	4.8
Semester 2nd			
No	Course Code	Courses	credits
1	N20A243017	Mechatronics and robotic Agriculture	4.8
2	N20A243018	Precision farming	4.8
3	N20A243020	Terrain-vehicle system	4.8

b. Curriculum Map of Agricultural and Food Machinery and Equipment Concentration

Course Status	Semester							
	1st	ECTS	2nd	ECTS	3rd	ECTS	4th	ECTS
Compulsory Course	Philosophy of Science	3.2	statistical analysis	4.8	Progress Research Seminar	9.6	Final Magister Seminar	14.4

Elective Course	Agro-industrial development strategy	4.8	Research Methodology	4.8
	Agro-industrial system analysis	4.8	Management of food and agricultural machinery	4.8
	measurement and instrumentation	4.8	Agro-industrial equipment and machinery	4.8
	Agricultural product characteristics	4.8	Dynamics of machinery	4.8
	Advanced optimization technique	4.8	Proposals Seminar	4.8
	numerical methods	4.8	Agricultural mechanical and robotics	4.8
	Advanced soil dynamics and traction	4.8	Precision farming	4.8
	Thermal system design	4.8	Terrain Vehicle System	4.8
	Green house technology	4.8		
	Smart system	4.8		

3. Post-Harvest Technology Concentration

a. Course List of Post-Harvest Technology Concentration

Main Courses

Semester 1st			
No	Course Code	Courses	ECTS
1	UNX692	Philosophy of science	3.2
2	N20A241001	Agro-industrial Development Strategy	4.8
3	N20A241002	Agro-industrial system analysis	4.8
4	N20A241003	Agricultural Product Characteristic	4.8
5	N20A241004	Advanced optimization Technique	4.8
6	N20A241005	Measurement and Instrumentation	4.8
7		Elective courses	4.8
Total:			
Semester 2nd			
No	Code	Courses	ECTS
1	UNX24693	Research methodology	4.8
2	UNX24680	Statistical analysis	4.8
3	N20A242006	Vegetable and Animal Post-harvest physiology	4.8
4	UNX24796	Seminar of Research proposal	4.8
5	N20A242026	Bioenergy technology	4.8
		Elective courses	9.6*
Total:			
Semester 3rd			
No	Code	Courses	ECTS
1	UNX24897	Progress Research Seminar	9.6
Total:			9.6
Semester 4th			
No	Code	Courses	ECTS
1	UNX24898	Theses	14.4
Total:			14.4

Elective Courses*)

Semester 1st			
No	Code	Courses	ECTS
1	N20A242025	Fruits and vegetable storage and handling	4.8
2	N20A24027	Technology of agricultural industrial waste Handling	4.8
3	N20A242028	Analysis of regression and surface response	4.8
4	N20A242014	Agro-industrial innovative technology	4.8
Semester 2nd			
No	Code	Courses	ECTS
1	N20A243029	Grain storage and handling	4.8
2	N20A243030	Fish and animal product storage and handling	4.8
3	N20A243031	Agricultural product Storage and Handling	4.8
4	N20A243032	Agricultural product Packing	4.8

b. Curriculum Map of Post-Harvest Technology

Course Status	Semester							
	1st	ECTS	2nd	ECTS	3rd	credits	4th	ECTS
Compulsory Course	Philosophy of Science	3.2	Research Methodology	4.8	Progress Research Seminar	9.6	Thesis	14.4
	Agro-industrial development strategy	4.8	Statistical Analysis	4.8				
	Agro-industrial system analysis	4.8	Proposals Seminar	4.8				
	measurement and instrumentation	4.8	Vegetable and animal post-harvest physiology	4.8				
	Advanced optimization technique	4.8	Bioenergy technology	4.8				
	Agricultural product characteristics	4.8						
Elective Course	Fruits and vegetable storage and handling	4.8	Grain storage and handling	4.8				
	Technology of agricultural industrial waste Handling	4.8	Fish and animal product storage and handling	4.8				
	regression and surface response Analysis	4.8	Agricultural product Storage and Handling	4.8				

Agro-industrial innovative technology	4.8	Agricultural Product Packing	4.8
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4. Food Technology Concentration

a. Course List of Food Technology Concentration

Main Courses

Semester 1st			
No	Course Code	Courses	ECTS
1	UNX692	Philosophy of science	3.2
2	N20A241001	Agro-industrial Development Strategy	4.8
3	N20A241002	Agro-industrial system analysis	4.8
4	N20A241007	Advanced food processing technology	4.8
5	N20A241008	Advance Food Chemistry	4.8
6	N20A241009	Advance food microbiology	4.8
7		Elective courses	4.8
Total:			
Semester 2nd			
No	Course Code	Courses	ECTS
1	UNX24693	Research methodology	4.8
2	UNX24680	Statistical analysis	4.8
3	N20A242010	Advance food process engineering	4.8
4	UNX24796	Seminar of Research proposal	4.8
5	N20A242011	Bio-product engineering	4.8
		Elective courses	9.6*
Total:			
Semester 3rd			
No	Course Code	Courses	ECTS
1	UNX897	Pregress Research Seminar	9,6
Total:			9.6
Semester 4th			
No	Course Code	Courses	ECTS
1	UNX 898	Final Masster Seminar	14.4
Total:			14.4

Elective Courses*)

Semester 1st			
No	Course Code	Courses	ECTS
1	N20A242030	Functional food development	4.8
2	N20A242031	Food Cellular Compound metabolism	4.8
3	N20A242032	Industrial food biotechnology	4.8
4	N20A242033	Advance food storage technology	4.8

5	N20A242034	Halal Food Technology	4.8
6	N20A242035	Fat and oil technology	4.8
Semester 2nd			
No	Course Code	Courses	ECTS
1	N20A3040	Food quality assurance	4.8
2	N20A3041	Enzyme and Microbial technology	4.8
3	N20A3042	Applied nanotechnology in food industry	4.8
4	N20A3043	Food toxicology	4.8
5	N20A3037	Food Processing Technology of Plantation Product	4.8
6	N20A3038	Fruits and vegetable processing technology	4.8

b. Curriculum Map of Food Technology

Course Status		Semester						
	1st	ECTS	2nd	ECTS	3rd	ECTS	4th	ECTS
Compulsory Course	Philosophy of Science	3.2	Research Methodology	4.8	Progrees Reseach Seminar	9.6	Final Research Seminar	14.4
	Agro-industrial development strategy	4.8	Statistica Analysis	4.8				
	Agro-industrial system analysis	4.8	Proposals Seminar	4.8				
	Advanced food processing technology	4.8	Advance Food Precess Engineering	4.8				
	Advanced Food Chemistry	4.8	Bio-product engineering	4.8				
	Advanced Food Microbiology	4.8						
Elective Course	Functional food development	4.8	food quality assurance	4.8				
	Food cellular compound metabolism	4.8	Enzim and microbial tecknology	4.8				
	Industrial food biotecgnology	4.8	applied nanotechnology in food industry	4.8				
	Advance food storage technology	4.8	food toxicology	4.8				
	Halal food technology	4.8	Food Processing Technology of Plantation Product	4.8				
	Fat and oil technology	4.8	Fruits and vegetable processing technology	4.8				

5. Food Security Concentration

a. Course List of Food Security Concentration

Main Courses

Semester 1			
No	Course Code	courses	ECTS
1	UNX692	Philosophy of science	3.2
2	N20A241001	Agro-industrial Development Strategy	4.8
3	N20A241002	Agro-industrial system analysis	4.8
4	N20A241003	Agricultural Product Characteristic	4.8
5	N20A241010	Food security Measurement and concept	4.8
6	N20A241011	Nutrition and food balance	4.8
7		Elective Course	4.8
Total:			15

Semester 2			
No	Code	Courses	ECTS
1	UNX24693	Research Methodology	4.8
2	UNX24680	Statistical Analysis	4.8
3	N20A242010	Food, energy and water availability system	4.8
4	N20A242043	Food policy	4.8
5	UNX24796	Seminar of Research Proposal	4.8
		Elective Courses	9.6
Total:			15

Semester 3			
No	Code	Courses	ECTS
1	UNX24897	Progress Research Seminar	9.6
Total:			9.6

Semester 3			
No	Code	Courses	ECTS
2	UNX24898	Final Master Seminar	14.4
Total:			14.4

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Semester 1st			
No	Course Code	Courses	ECTS
1	N20A242040	Functional food Development	4.8
2	N20A242041	Management of natural resources	4.8
3	N20A242042	Halal food technology	4.8

4	N20A242043	Management technology	4.8
5	N20A242044	Evaluation method of Biological food component	4.8

Semester 2nd

No	Course Code	Courses	ECTS
1	N20A243040	Food quality control	4.8
2	N20A243041	Advance food processing and preservation technology	4.8
3	N20A243042	Advanced Soil and water conservation engineering	4.8
4	N20A242037	Food Processing Technology of Plantation Product	4.8

b. Curriculum Map of Food Security Concentration

Course Status		Semester						
		1st	ECTS	2nd	ECTS	3rd	ECTS	4th
Compulsory Course	Philosophy of Science	3.2	Research Methodology	4.8	Progress Researc Seminar	9.6	Final Mas ter Seminar	14.4

Agro-industrial development strategy	4.8	Statistical Analysis	4.8
Agro-industrial system analysis	4.8	Proposals Seminar	4.8
Agricultural product characteristics	4.8	Food, energy and water availability system	4.8
Food security Measurement and concept	4.8	Food policy	4.8
Nutrition and food balance	4.8		

elective course	Management of Natural resources	4.8	Soil and water engineering	4.8
	Functional food development	4.8	food quality assurance	4.8
	Halal food technology	4.8	Food Processing Technology of Plantation Product	4.8
	Management technology	4.8	Advance food processing and preservation technology	4.8
	Evaluation method of biological food component	4.8		

Learning Outcome of Course

Course Code	Courses	Learning Outcome	LO
UNX24692	Philosophy of Science	Students are able to correctly understand the concept of philosophy of science, logic of thinking, academic ethics, as a foundation in building knowledge in the Agro-industrial field	
N20A241001	Agro-industrial development strategy	students know the concept and potential of agro-industrial and are able to formulate strategies in the development of agro-industrial development	
N20A241002	Agro-industrial system analysis	students are able to understand the concepts and theories of agro-industrial systems holistically and students are able to use analysis and modelling tools in efforts to develop the agro-industrial upstream-downstream sector	
N20A241006	Advanced Soil and Water Conservation	students are able to understand and master concepts and practices regarding soil and water issues as well as conservation methods that can be used as an effort to improve the environment in a responsible manner and uphold academic norms	
N20A241005	measurement and instrumentation	students are able to understand and master the theory and concept of measuring data acquisition recording and electronic instrumentation with mechanical thermal and chemical parameters as well as errors and their control in the field of agro-industrial	
UNX24693	Research Methodology	students master and understand research methods along with their application in agro-industrial research	
UNX24680	Statistical Analysis	students are able to understand and master basic concepts and types of statistical analysis and are able to use it as a tool in solving problems in the field of agro-industrial.	

N20A242022	Advanced irrigation and drainage engineering	students are able to understand and master the concept of irrigation and drainage technical design for surface, subsurface, drip rainfall, as well as swamps and tides based on design criteria that apply properly and correctly	
UNX24796	Proposals Seminar	students are able to master the techniques of writing scientific papers research plans and presenting them in a coherent and clear manner	
UNX998	Thesis	students master the technique of writing scientific research results and present research results clearly and publish the research results	
N20A242020	Natural resources Management	students understand and master the concepts and theories of management and management of natural resources based on the principles of utilization and environmental conservation	
N20A242022	Water Quality	students Understand and master the basic principles of water quality, salinity, level of danger of cation and anion content as well as irrigation water quality improvement design	
N20A242021	water resources planning	students understand and master the concepts, theory and practice of collecting, compiling, planning water resource data for water resource management in accordance with regional planning regulations and patterns	
N20A242024	Advanced soil dynamics in Tillage and traction	students understand soil as a growing medium, construction and operating space based on the principles of soil mechanics physics which aims to increase the productivity of agricultural land within the scope of agro-industry	
N20A242021	Watershed engineering and management	students master the concepts, theories and practical characteristics of upstream-downstream watershed management by using good and correct measurements and modelling in accordance with academic norms and ethics	

N20A243025	Advanced optimization technique	Understand the concept and theory of optimization in agro-industrial production using the simplex modelling approach, dynamic assignment, production transportation, queuing and also the use of programs in agricultural operations	
N20A243026	Hydro-climate modelling	students understand mastering conceptual, distributive, discrete, continuous, dynamic modelling and its application in determining water needs for irrigation and watershed management	
N20A243023	Advanced Soil and water engineering	students understand mastering the basic principles of soil preservation and water management techniques through planning and designing various techniques using biological, chemical and mechanical methods	
N20A243024	Region-specific technology development	students understand and master the theoretical and practical concepts of regional-specific technology development that are independent and effective based on regional comparative and competitive analysis in a sustainable environmental perspective that is correct according to academic norms and ethics	
N20A241003	Agricultural product characteristics	able to understand concepts and theories about the nature and characteristics of agricultural products correctly and responsibly	
N20A242008	Management of food and agricultural machinery	Understand the application of the relationship between machine operating parameters, operating costs, selection of work patterns, resource capacity and the application of operations research in agricultural machinery management	
N20A242009	Agro-industrial equipment and machinery	Understand the relationship between the physical properties of materials and agricultural machinery, the basis for operating calculations, setting power requirements, maintenance and economic analysis on post-harvest and food processing machines	

N20A242018	Dynamics of machinery	Understand the principles of engine dynamics vibration on the engine, critical speed, engine balance, mechanics, instantaneous central cam and force analysis on engine components	
N20A242012	Numerical methods		
N20A242014	Thermal system design	Understand the principles of designing agricultural processing machines using the principles of freeze drying, boiler cooling and cooking furnaces	
N20A242015	Green house technology		
N20A242016	Smart system	Understand the application and application of artificial intelligence, expert systems, fuzzy logic, neural networks, computer programming and intelligent system applications in agro-industrial systems	
N20A243017	Agricultural mechatronics and robotics	Understand and know mechatronics and its application in the food processing industry and industry with the principles of electronics, hydraulics and fluid programming in robotics design	
N20A24205318	Precision farming	Mastering the scope and development of accurate agriculture, the use of GPS information in accurate agricultural activities, differential correction, sensor knowledge in accurate agricultural development, spatial diversity, soil and water conditions and nutrient spatial diversity	
N20A203019	system thermal design	Understand the principles of designing agricultural processing machines using the principles of freeze drying, boiler cooling and cooking furnaces	
N20A203020	Terrain Vehicle System	Understand and master the construction Terran vehicle classification and balance chassis	
N20A242006	Vegetable and animal post-harvest physiology	Understand the nature of vegetable farming, changes in physical physiology, hormones, anatomical and biochemical morphological structures and the factors that influence damage or decay in agricultural products and their control	

N20A242026	Bioenergy technology	Understand the potential of various kinds of materials that can be used as a source of bioenergy, methods of extraction of each refining material and analysis of the quality of bioenergy products	
N20A242025	Fruits and vegetable storage and handling	Understand the concept and theory of harvesting, handling, storage and processing of vegetables and fruit as well as packaging and control during the distribution process	
N20A2027	Technology of agro-industrial waste management	Understand the techniques for handling agricultural and food industrial waste as well as controlling and handling liquid solid waste, gas, and hazardous and toxic materials	
N20A242028	regression and surface response Analysis	Mastering models and regression equations, the basic assumptions for estimating and testing multicollinearity parameters, autocorrelation, response surface techniques, determining the optimum operating conditions and estimating design of first and second order models	
N2024A2014	Agro-industrial innovative technology	Understanding material cycles and energy flows, balancing the use of materials and energy, environmental efficiency and clean technology, concepts and techniques for using materials to produce minimal waste and applying financial and economic analysis to various innovations in the agro-industrial sector	
N20A243029	Grain storage and handling	Understand the characteristics of cooking, drying, psychometric, stripping, cleaning, storage and control systems, standardization and quality testing of pest control and design of grain storage systems within the scope of agro-industrial	
N20A243030	Fish and animal product storage and handling	Understand the characteristics, quality criteria for damage and how to handle, store and preserve it from the post-harvest process to the industrial process for agro-industrial commodities, meat, milk, eggs and seafood	
N2024 A3031	Agricultural product Storage and Handling	Understand the activities of pre-manufacturing, manufacturing, post-manufacturing and components that affect the quality of processing products as well as analysing the various changes that occur in agro-industrial commodities in the form of tea, coffee, cocoa, sugarcane, rubber, coconut and palm oil	

N20A243032	Agricultural Product Packing	Understand various kinds of packaging at the harvest, post-harvest and packaging stages by paying attention to the strength, shape, size and packaging materials for whole sale and retail	
N20A241007	Advanced food processing technology	Understand food processing technology using ohmic heating ultrasound, PEF, microwave, HPP, SSD, ozone encapsulation, nanotechnology and irradiation methods as well as the use of water in advanced food processing in accordance with academic ethics and norms	
N20A241008	Advanced Food Chemistry	Understanding and mastering the concept and theory of chemical characteristics; carbohydrates, proteins, enzymes from various food ingredients correctly and in accordance with academic norms and ethical values	
N20A241009	Advanced Food Microbiology	Understanding the theoretical and practical concepts of the application of microorganisms in functional food products, the fermentation industry, fermented nuts, and fermented food products correctly	
N20A242010	Advance Food Process Engineering	Understand the theoretical and practical concepts of food engineering by measuring rheology, texture resistance and tensile using numerical and mechanistic analytical models in accordance with proper academic ethics and norms	
N20A242011	Bio-product engineering	Understanding theoretical and practical concepts in bioproduct engineering techniques, genes and recombinant DNA technology in manufacturing pharmaceutical bioproducts and bioenergy	
N20A2030	Functional food development	Understand the theoretical and practical concepts of developing functional food based on bioavailability and health in milk fibre and other food products correctly according to ethics and academic norms	
N20A242031	Food cellular compound metabolism	Understanding the sources of function and the role of carbohydrates, proteins, fats, vitamins, minerals and water in the process of metabolism of nutrients as well as the enzymes and hormones involved as well as identification of facilitating and inhibiting factors of metabolism	
N20A242032	Industrial food biotechnology	Understand the concept of biomolecular theory and technology and the application of biotechnology in the food industry	
N20A242033	Advance food storage technology	Understanding the theoretical and practical concepts of storing various foodstuffs by engineering environmental factors to reduce the damage that occurs to foodstuffs	

N20A242034	Halal food technology	Understanding and mastering the theories and concepts of certification quantification guarantee systems and halal relations within the scope of agro-industrial and applicable laws and regulations	
N20A242035	Fat and oil technology	Understand the techniques and methods of extraction, refining, chemical transformation of oils and fats as well as the application development of various derivative products in various industries	
N20A243040	food quality assurance	Understanding of quality control and food safety management systems using management system standards; Good Agricultural Practices (GAP), Good Handling Practices (GHP), Good Management Practices (GMP), Good Distribution Practices (GDP), Risk Analysis in Sanitary Phytosanitary ISO 9000 ISO 22000, predictive microbiology and HACCP and their applications in agro-industrial	
N20A243041	Enzyme and microbial technology	Understanding and mastering enzyme and microbial technology in the production of high value food ingredients	
N20A243042	applied nanotechnology in food industry	Understand the technique of applying nanotechnology and its influence on the characteristics of food ingredients within the scope of agro-industrial.	
N20A243043	food toxicology	Understanding and mastering the relationship between the phases of contaminant source factors, the mechanism of chemicals and microbial indicators in the toxicology of food ingredients and the food industry through physiology and characteristics of the digestive tract	
N20A243037	Food Processing Technology of Plantation Product	Understand the characterization of plantation commodities derived from these commodities, process technology and product quality standards.	
N20A243038	Fruits and vegetable processing technology	Understanding and mastering the theory and concept of characteristics and processing of vegetables and fruit based on national quality standard grading using various techniques such as freezing and active packaging	
N20A241010	Food security Measurement and concept	Understand the concepts, indicators, measurement techniques and factors that influence food security	
N20A241011	Nutrition and food balance	Understanding the nutritional content of foodstuffs, measuring nutritional adequacy figures and food balances	

N20A242010	Food, energy and water availability system	Understanding and critically analyzing as well as describing and evaluating the concept of food, energy and water availability systems in the concept of sustainability applied to socio-technical systems with various indicators and methodologies and their impact on the social and economic environment both on a local and global scale	
N20A242043	Food policy	Understanding and mastering the strategic role of the agricultural sector in food policy, agricultural development strategy in supporting food policy, food position in national development, food development framework, global and national food issues, food security policies through food security development strategies, food security operational policies and food affordability and food policy regulations	
N20A242043	Management technology	Understanding and mastering the concept and space of environmental technology management, process technology and technology adoption, technology implication and integration, technology sophistication assessment, technology asset valuation, technology adoption planning, technology effectiveness, technology planning and technology innovation and technology development strategy	
N20A242044	Evaluation method of biological food component	Understanding the absorption of food components and their metabolism in the body, both macro, micro components and secondary metabolites that are common in plants and the bioavailability of food components that are absorbed and metabolized in the body is	
N20A243041	Advanced food processing and preservation technology	Understand food processing technology using ohmic heating ultrasound, PEF, microwave, HPP, SSD, ozonation, encapsulation, nanotechnology and irradiation methods and the use of water in advanced food processing in accordance with academic ethics and norms	