

Course Detail

Master of Science in Organic Agriculture Management and Innovative Agricultural Products (International Program)

- 1. Course Title:** Master of Science Program in Organic Agriculture Management and Innovative Agricultural Products (International Program)
- 2. Master Degree:** Master of Science (Organic Agriculture Management and Innovative Agricultural Products) (International Program)
- 3. Academic Institution:** International College of Maejo University
- 4. Duration:** 2 years from June 2026 to March 2028
- 5. Background and Rational:**

Agriculture remains a cornerstone of Thailand's economy, food security, and rural livelihoods. However, the sector faces mounting challenges from climate change, environmental degradation, and shifting global market demands. In response, Maejo University has developed the Master of Science Program in Organic Agriculture Management and Innovative Agricultural Products (International Program) to align with national development strategies and global sustainability frameworks. The program is rooted in the principles of the Bio-Circular-Green (BCG) Economy Model and Sufficiency Economy Philosophy (SEP), both of which emphasize sustainable growth, resource efficiency, and resilience.

Organic agriculture is central to this transformation. It offers a pathway to food safety by eliminating synthetic chemicals and genetically modified organisms (GMOs), thereby reducing health risks and ensuring high-quality food standards. Simultaneously, organic practices contribute to environmental sustainability by enhancing soil health, conserving water, and protecting biodiversity. These benefits are increasingly critical as agriculture must adapt to the realities of climate change.

A key focus of the program is climate resilience. Agriculture is one of the sectors most vulnerable to climate change, facing challenges such as erratic weather patterns, droughts, floods, and pest outbreaks. The program equips students with the knowledge and tools to develop climate-resilient farming systems through the adoption of smart farming technologies, nanotechnology, and plasma innovation. These approaches enhance productivity, reduce input dependency, and support both mitigation and adaptation strategies—ensuring that agricultural systems remain viable and sustainable under changing climatic conditions.

In alignment with global economic trends, the program promotes the development of organic agriculture on an industrial scale. This includes building capacity for value-added production, supply chain management, and international market integration. By doing so, the

program supports Thailand's ambition to become a leader in the global organic sector, meeting rising consumer demand for ethical, sustainable, and traceable food products.

The curriculum is designed to support the United Nations Sustainable Development Goals (SDGs), particularly:

SDG 2: Zero Hunger – promoting sustainable food systems and resilient agriculture.

SDG 3: Good Health and Well-being – ensuring food safety and reducing exposure to harmful substances.

SDG 8: Decent Work and Economic Growth – fostering entrepreneurship and job creation in organic agribusiness.

SDG 12: Responsible Consumption and Production – encouraging environmentally sound agricultural practices.

SDG 13: Climate Action – advancing climate-resilient agriculture.

SDG 15: Life on Land – supporting biodiversity conservation and sustainable land use.

The program also emphasizes entrepreneurship and policy leadership. Students are trained to become agribusiness entrepreneurs capable of launching innovative ventures and scaling sustainable agricultural models. Courses such as Business Planning for Organic Agribusiness Entrepreneurs and Supply Chain and Logistics Management provide practical skills for enterprise development and market competitiveness.

Simultaneously, the program prepares students to become policymakers and strategic planners. Through modules like Future Agriculture and Environment Management, students explore agricultural policy frameworks, climate adaptation planning, and sustainable development strategies. This empowers graduates to influence policy at local, national, and international levels, contributing to systemic change in the agricultural sector.

Developed in collaboration with diverse stakeholders—including students, faculty, industry experts, government agencies, and international partners such as the International Sustainable Development Studies Institute (ISDSI), Smart Nano Co., Ltd., and the ASEAN Agriculture University Network (AAUN)—the program ensures relevance, innovation, and global competitiveness.

6. Objectives:

1. Develop skills to manage diverse and sustainable organic agriculture.
2. Lead innovative organic agribusinesses that adapt to global trends.
3. Create agricultural innovations based on the BCG economic model for entrepreneurship.
4. Use technology and academic communication in line with international research standards and ethics.

7. Course Synopsis and Methodology:

7.1 Study plan

Plan 1.1 for students who have an organic agriculture background

Thesis 36 credit

Seminar + Research Methodology + Statistic for research (10) credit

Academic publication 1 paper

1 st semester	2 nd semester	3 rd semester	4 th semester
Major course: 1. Research Methodology 2. Seminar 1	Major course: 1. Statistics for research 2. Seminar 2	Major course: 1. Seminar 3	Major course: 1. Seminar 4
Thesis Topic Thesis Advisors	Proposal defense	Doing research	Thesis defense 1 Academic publication

Plan 1.2 for students who have an agriculture background

Major core courses	9 credit
Major elective courses	15 credit
Thesis	12 credit
Seminar + Research Methodology + Statistic for research	(10) credit
Academic publication or proceedings international conference	1 paper

1 st semester	2 nd semester	3 rd semester	4 th semester
Major course: 1. Research Methodology 2. Seminar 1 3. Organic farming using natural methods and principles of organic farming standards 4. Entrepreneurship in Value Chain of Organic Agriculture and Agricultural Innovation Product	Major course: 1. Statistics for research 2. Seminar 2 3. Development of innovative agricultural products	Major course: 1. Seminar 3	Major course: 1. Seminar 4
Major elective: 1. Major elective 1 2. Major elective 2	Major elective: 1. Major elective 3 2. Major elective 4	Major elective: 1. Major elective 5	
Thesis Topic Thesis Advisors	Proposal defense	Doing research	Thesis defense Academic publication or proceeding international conference

Plan 2 for students who don't have an agriculture background

Major core courses	9 credit
Major elective courses	21 credit
Independent study	6 credit
Seminar + Research Methodology + Statistic for research	(10) credit
Proceedings international conference	1 paper

1 st semester	2 nd semester	3 rd semester	4 th semester
Major course: 1. Research Methodology 2. Seminar 1 3. Organic farming using natural methods and principles of organic farming standards 4. Entrepreneurship in Value Chain of Organic Agriculture and Agricultural Innovation Product	Major course: 1. Statistics for research 2. Seminar 2 3. Development of innovative agricultural products	Major course: 1. Seminar 3	Major course: 1. Seminar 4
Major elective: 1. Major elective 1 2. Major elective 2	Major elective: 1. Major elective 3 2. Major elective 4 3. Major elective 5	Major elective: 1. Major elective 6 2. Major elective 7	
IS Topic IS Advisors	Proposal defense	Doing research	IS defense Proceeding international conference

Thesis Preparation Plan

1. Submit the thesis topic within the 3rd semester of October 2027.
2. Examination of thesis proposal within the 3rd semester of October 2027.
3. The thesis defense examination is scheduled for the 4th semester of March 2028.

*** Note: The date and time shall be following Maejo University's announcement regarding the Graduate Studies Calendar.

7.2 Course Content

21601501 Research Methodology for Interdisciplinary Organic Agriculture Management and Agricultural Innovation Product 3 credit

Prerequisite: As approved by program committee

The concepts of interdisciplinary organic agriculture management research, experimental designs and steps in interdisciplinary organic agriculture management research, data processing, analysis and interpretation of research results, writing and presenting a research report.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601502 Statistics for research on organic agricultural management and production of innovative agricultural products. 3 credit

Prerequisite: As approved by program committee

Principles of using statistical tools suitable for research in both science and social sciences including designing experiments and surveys, data analysis techniques space and time analysis, practice skills in using statistical programs and study cases regarding organic farming management and production of innovative agricultural products.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601591 Seminar 1 1 credit

Prerequisite: None

Presentation and discussion of topics of interest in the general area of organic agriculture management and innovative agricultural products for master degree students.

(Lecture 0 hour, Practice 2 hours, Self Study 1 hour/week)

21601592 Seminar 2 1 credit

Prerequisite: None

Presentation and discussion of topics of organic agriculture management and innovative agricultural products related to master thesis.

(Lecture 0 hour, Practice 2 hours, Self Study 1 hour/week)

21601593 Seminar 3 1 credit

Prerequisite: None

Presentation research's plan and discussion of topics of organic agriculture management and innovative agricultural products related to master thesis.

(Lecture 0 hour, Practice 2 hours, Self Study 1 hour/week)

21601594 Seminar 4 1 credit

Prerequisite: None

Presentation and discussion of the result of organic agriculture management and innovative agricultural products master thesis.

(Lecture 0 hour, Practice 2 hours, Self Study 1 hour/week)

21601511 Organic farming using natural methods and principles of organic farming standards 3 credit

Prerequisite: None

Principles and practices of organic crop production, organic input production, weed management, pest control and plant diseases, organic farm and processing unit inspector, certification and documentation in international organic standard. Visit farms and factories in the organic farming system that have been certified with organic agricultural standards

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601512 Entrepreneurship in Value Chain of Organic Agriculture and Agricultural Innovation Product 3 credit

Prerequisite: None

Compare the overview of the industries related to organic agriculture both domestically and internationally. A process that can increase competitiveness, Commercial Value-Added Approach Business concepts and principles, Seeking funding to support product development and start a business, Developing business plans, marketing plans, financial and

accounting plans, production plans, and personnel management plans. case studies and have a study visit outside the place both community businesses and large business (Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601513 Safe agriculture and organic agriculture innovation development 3 credit

Prerequisite: None

Safe agriculture and organic agriculture development through science, technology, innovation, research for potential increasing of production process, processing, and value. Assessment and control of the quality of agricultural produce, including agricultural innovation products, to meet standards

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601521 Cannabis Science 3 credit

Prerequisite: None

Botany of Cannabis, culture, bioactive compound, extraction and analytical techniques for bioactive compounds, processing, marketing and the application of Cannabis in the medicine, cosmetic and pharmaceutical industries.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601522 Organic Livestock Production and Organic Aquaculture Farming 3 credit

Prerequisite: None

Principles and animal production in organic farming systems, organic livestock farming management, organic livestock feed production, principles and practices of organic aquaculture farming, ecological system in aquaculture farm, organic aquatic animal feed and organic aquaculture farming management, processing and management of livestock and aquatic animals products in organic systems.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601523 Bio-circular Green Economy and Technological Innovations for Sustainable Development 3 credit

Prerequisite: None

Sustainable agricultural technologies, agricultural production and food safety, algal production system, agro-industry, biological natural resource engineering, bioprocess, biosystems, biocatalysis, lignocellulosic biomass, bio-based materials research, organic dye, energy crops for fiber compounds, polymers, fatty acids, oils, essential oils, chemicals derived from oilseed crops, biologically active compounds, nanoparticles linked with crops,

valorization and metabolite extraction of waste streams and antioxidant activity, biochemical engineering, product engineering in the bio industries, bio-circular green economy, agrotourism.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601524 Advanced Technology and SMART Farm in Modern Agriculture 3 credit

Prerequisite: None

Applications of advanced agricultural technologies, automated and precision system, application of the Geographic Information System (GIS), modern tools and machinery, application of the remote sensor for the precision farm management and development directions corresponding with global situations. Visit SMART Farm.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601525 Business Plan for Entrepreneur in Organic Agribusiness 3 credit

Prerequisite: None

Concept and importance of business plan, principles of writing business plan, business background, industry competitive analysis, determination of vision, mission and goals, business strategy, operation plan, backup plan and solutions. Visit a successful organic farming business

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601526 Climate change and organic farming systems 3 credit

Prerequisite: None

The impacts of climate change on agricultural practices, ecosystems, and food security, with a specific focus on how organic farming methods can mitigate and adapt to climate changes. The challenges and opportunities from climate change in the context of organic agriculture and climate resilience agriculture, Carbon neutrality and net zero emission.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601527 Food safety and human health through organic agriculture 3 credit

Prerequisite: None

How organic farming practices contribute to the production of safe and nutritious food while minimizing negative impacts on human health and the environment. Through a combination of theoretical knowledge, practical demonstrations, case studies, and

discussions, students will gain a comprehensive understanding of the principles and practices of organic agriculture in ensuring food safety and promoting human health. (Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601528 Organic certification and traceability of national and international standards
3 credit

Prerequisite: None

The regulatory frameworks, certification processes, and traceability systems involved in ensuring the integrity of organic products from farm to table. Through lectures, case studies, interactive discussions, and practical exercises, students will gain the knowledge and skills necessary to navigate the complexities of organic certification and traceability in the global marketplace.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601529 Nano and Plasma Technology for Agriculture 3 credit

Prerequisite: None

Introduction to plasma, Non-thermal plasma, plasma chemistry, plasma functionalization and polymerization, plasma parameters characterization, plasma activated media, plasma application for seed germination, plasma sterilization and microbe inhibition, plasma application for plant extraction, plasma application for nanoparticle synthesis, plasma application for porous materials

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601530 Food innovations of the future 3 credit

Prerequisite: None

Types of future foods, basic food, functional food, medical food, food chemistry, functional food, Biologically active substances in food, Shelf life and packaging management, Laws and Standards for Food and Supplements, Health food business and marketing

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601531 Business plan for Agricultural Innovation Product 3 credit

Prerequisite: None

Innovation definition, Agriculture innovation definition, 3P Process position paradigm of innovation. Business plan, Business idea of agriculture products, Marketing plan, Risk management in agriculture products.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601532 Extraction and processing of important substances from cannabis for Thai traditional and modern medicine 3 credit

Prerequisite: None

Traditional techniques for extracting important substances from cannabis and hemp as well as the extraction techniques of Thai traditional medicine and modern medicine. Including technology for the extraction of important substances in industrial systems

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21602512 Advanced Argo-Tourism Management 3 credit

Prerequisite: None

The role of the agricultural sector in today's tourism business includes ideas for operating an agritourism business from of agricultural tourism as an intermediary creating sustainability in the economy, culture, and way of life. Marketing management, digital marketing which is networks or groups of agritourism in the community, provincial, regional, national, international levels and legally levels.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21602520 Sustainable Agricultural Business Management and Implications for Tourism
3 credit

Prerequisite: None

Context or situation of global business agriculture, sustainability problem issues, natural resource management and businesses, fundamental principles of agribusiness management for tourism. How to apply sustainability issues as key factors in tourism business decision making today and in the future.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21603552 Future Agriculture and Environment Management 3 credit

Prerequisite: None

This course deals with development of agricultural innovation and sustainable agribusiness management. Learn on how to become an agribusiness entrepreneur, knowledge development, modern agricultural technology, proper adaptation to climate change, assessment of agricultural and environmental policies, including outlook on future trends knowledge management in solving natural resource and environmental burdens. Case studies of eco-industrial city, Green agricultural city, Low carbon city, and sustainable city.

(Lecture 3 hours, Practice 0 hours, Self Study 6 hours/week)

21601691 Thesis 1 6 credit

Prerequisite: None

Review the literature related to the master thesis, conceptual framework, experimental design and thesis planning, emphasize the discussion with advisory committee to select research topic and propose proposal.

(Lecture 0 hour, Practice 18 hours, Self Study 0 hour/week)

21601692 Thesis 2 6 credit

Prerequisite: 21601691 Thesis 1

Plan A Type A 1: Research conduction with creativeness, theory and analysis techniques with instruments, data collection and interpretation, discussion with advisory committee and solving research problems.

Plan A Type A 2: Research conduction with creativeness, theory and analysis techniques with instruments, data collection and interpretation, development of independent thinking and expression of opinion, integration of research knowledge for research publication, academic presentation and thesis writing in clear and consise manner; thesis preparation must be done according to Maejo University guidelines.

(Lecture 0 hour, Practice 36 hours, Self Study 0 hour/week)

21601693 Thesis 3 12 credit

Prerequisite: 21601693 Thesis 2

Research data collection and interpretation, independent thinking and personal development, integration of research knowledge for research publication and academic presentation.

(Lecture 0 hour, Practice 36 hours, Self Study 0 hour/week)

21601694 Thesis 4 12 credit

Prerequisite: 21601693 Thesis 3

The development of independent thinking and expression of opinion, creating and integration knowledge which reflects research gained for thesis writing in clear and concise manner; thesis preparation must be done according to University guidelines.

(Lecture 0 hour, Practice 36 hours, Self Study 0 hour/week)

21601690 Independent Study 6 credit

Prerequisite: None

Independent study at the master's level as characterized by analysis and study of data related to major courses and writing as report, under the supervision and recommendation of the student advisor.

Lecture 0 hour, Practice 18 hours, Self Study 0 hour/week)

8. Graduation Conditions:

For the students studying in Plan 1.1

1. Pass a foreign language examination according to the regulations and conditions set by the university.
2. Present their theses in English and pass a final oral examination conducted by a committee appointed by the university (a higher education institution) in a system open to interested parties to attend. This must consist of professors in charge of the program and experts from outside the university.
3. At least one paper stemmed from their theses or part of them must be published or at least accepted for publication in a national journal in a foreign language or an international journal. Both journals must be qualified according to the Announcement of the Commission on Higher Education on Criteria for Considering Academic Journals for Dissemination of Academic Output.

For the students studying in Plan 1.2

1. Complete all the courses as specified in the program. They must obtain a grade point average of not less than 3.00 from a 4-level system or equivalent and have no course received I and/or Op.
2. Pass a foreign language exam according to the regulations and conditions set by the university.

3. Present their theses in English and pass a final oral examination conducted by a committee appointed by the university (a higher education institution) in a system open to interested parties to attend. This must consist of professors in charge of the program and experts from outside the university.
4. At least one paper stemmed from their theses or part of them must be published or at least accepted for publication in a national journal in a foreign language or an international journal. Both journals must be qualified according to the Announcement of the Commission on Higher Education on Criteria for Considering Academic Journals for Dissemination of Academic Output. Alternatively, a full paper stemming from their theses can be presented at an international conference and published in the proceedings.

For the students studying in Plan 2

1. Complete all the courses as specified in the program. They must obtain a grade point average of not less than 3.00 from a 4-level system or equivalent and have no course received I and or Op.
2. Pass a foreign language exam according to the regulations and conditions set by the university.
3. Pass a comprehensive examination.
4. Present their independent studies in English and pass the final oral exam conducted by a committee appointed by the higher education institution in a system open to interested parties to attend.
5. At least one full paper stemmed from their independent studies or part of them must be presented at an international conference and then published in the proceedings.

9. Applicant Qualifications

1. Graduated with a bachelor's degree in all disciplines or equivalent from a higher education institution certified by the Ministry of Education or the Office of the Higher Education Commission (OHEC) or the Office of the Civil Service Commission (OCSC) both domestically and internationally or at the discretion of the instructor in charge of the program.
2. Having qualifications according to Maejo University regulations on graduate studies and other relevant announcements being in force at that time.
3. International students who want to be admitted to study must be approved by the instructor in charge of the program.

10. Document Required

1. Two copies of the completed application form.
2. Two copies of a certificate according to the form of the Graduate Studies Department
3. A letter of recommendation from the supervisor.
4. Two 1-inch photographs shot of a straight face, not wearing a hat or black sunglasses.
5. Two copies of evidence of name-surname changed or 2 copies of a marriage certificate. (In the case of name and/or surname does not match any other application evidence.)
6. Two copies of study transcript reports at undergraduate and master's degree levels.
7. Two copies of educational report certificates for a higher vocational certificate, a technical vocational certificate, or an equivalent diploma (except for those who graduated with a 4-year bachelor's degree program).
8. Two copies of a certificate of being a student in the last semester of a program.
9. Guidelines for conducting a research study.
10. Application fee of 500 baht (in case of applying via the Internet)

- ใบสมัครทุนรับทุนและ Medical Report สามารถดูรายละเอียดได้จากเว็บไซต์: <https://tica-thaigov.mfa.go.th/en/page/75500-tipp-application-form?menu=605b13dbb6f1b76ed31778b3>

- Transcript
- Recommendation Letter
- English Test

11. Contact:

1	Associate Professor Dr. Rapeephun Dangtungee Mobile phone: 0816459789	Position: Chairperson of the committee responsible for the program E-mail: rapeephun_dg@mju.ac.th
2	Dr. Prakash Murgeppa Bhuyar Mobile phone: 0650537513	Position: Member of the committee responsible for the program E-mail: prakash@mju.ac.th
3	Dr. Krittiya Tongkoom Mobile phone: 0650055951	Position: Secretary of the committee responsible for the program E-mail: krittiya_tk@mju.ac.th

Program coordinator dealing with program management and scholarship recipients

Mrs. Julijanna Sirikhampa

Mobile-phone: 083-7814897

ID line: Julijanna

E-mail: julijanna@mju.ac.th

ติดต่อรายละเอียดเพิ่มเติม

กองความร่วมมือด้านทุน

กรมความร่วมมือระหว่างประเทศ

ศูนย์ราชการเฉลิมพระเกียรติ ๘๐ พรรษา อาคาร B (ทิศใต้) ชั้น ๘

ถนนแจ้งวัฒนะ หลักสี่ กทม. ๑๐๒๑๐

Tel. ๐ ๒๒๐๓ ๕๐๐๐ ต่อ ๔๓๑๐๑, ๔๓๑๐๗ Fax: ๐ ๒๑๔๓ ๘๔๕๑

E-mail: tipp@mfa.go.th
