Course Detail
Master of Science Program in Innovative Food Science and Technology

Course Title:	Master of Science Program in Innovative Food Science and Technology
Master Degree:	Master of Science (Innovative Food Science and Technology)
Academic Institution:	School of Agro-Industry, Mae Fah Luang University
Duration:	2 years (August 2024 - May 2026)

Background and Rationale:
Agricultural and food industry is the basic source of the food supply of all the countries in the world. The demand for food is increasing at a fast rate, therefore, it is one of the important industries in the world and especially in Thailand. The prosperity of this industrial sector contributed considerably to fostering the economic advancement of the countries. It engenders income for the population who work in the relevant parts of the supply chain. Thailand aims to be the center of food production in ASEAN and has a gross food product of 1.42 trillion Baht or an increase of 4% per year. Currently, the total economic value of the food processing industry is more than 5 trillion baht each year. In 2019, Thailand was the 11th largest food exporter in the world. Throughout our history we can trace back development and research for better food supply, management, and safety as the world population has risen while our access to resources remains the same or in some areas has even decreased. In recent years, the world has witnessed a global food crisis which creates a knock-on effect on people, society, and the environment. Being aware of the importance of the issues, the United Nations has announced Sustainable Development Goal 2: to "end hunger, achieve food security, improve nutrition and promote sustainable agriculture", all of this reflects well how the agricultural and food industry is a prerequisite for people's wellbeing. Therefore, promoting research and development that requires knowledge in food science and technology will not only ensure food security but more importantly will drive the agricultural and food industry in Thailand to become a global market leader in the future.
Surrounded by flourishing agricultural communities, Mae Fah Luang University takes an active role in the agro-industry with pride. The Master of Science Program in Innovative Food Science and Technology focuses on applying basic scientific knowledge to strengthen the agricultural and food industry of the country through research, development, and innovation. Therefore, the curriculum has been designed and developed according to the constructivist educational approach where knowledge and skills of learners will be developed from within the learner through real practices. Therefore, the Master of Science program in Innovative Food Science and Technology aims to create and develop human resources in the agricultural and food industry with professional morals and ethics. Students can apply the knowledge to solve problems in industry or work with others to further develop the agricultural and food industry.

The Master of Science Program in Innovative Food Science and Technology provides you with an understanding of modern food production and prepares you to work in various aspects of food research and development. A wide range of learning environments is available to students, including lectures (small degree programs with an excellent student-teacher ratio), tutorials, modern laboratory, and pilot plant practicals, factory visits, visiting scholars, and academic activities. This degree has strong links to Thailand's food industry leaders. With input from industry partners, you'll create new products, develop manufacturing processes, or design foods of the future with a focus on taste, health, sustainability, food quality, and food safety. Lecturers are active researchers who'll share the latest knowledge in food safety and quality management,

food chemistry, food microbiology, functional food and nutrition, food processing technology, food product development, future food, and Geographical Indications (GI) products. In order to further expand and improve successful ongoing research projects as well as to create sustainable synergies, the program is engaged in successful and intense cooperation with excellent partners in both the national and global academic realm, including; Chiba University, Shinshu University, Tokyo University of Marine Science and Technology, Kagoshima University, Japan; Korea University, Sejong University, Kyungnam University, Korea, Bogor Agricultural University, Indonesia; Universiti Teknologi Mara, Malaysia; Universiti Putra Malaysia, Malaysia; Hohenheim University, Germany; Mendel University in Brno, Czech Republic, and IUT Lyon 1 - site de Bourg en Bresse, AgroSup Dijon, France.

Objectives:

The aims of this program are to educate the students to have the knowledge, expertise, and potency in food science and technology; and to be able to apply their skills and advanced knowledge to a food-related workplace situation, as well as create knowledge, innovation, research and development of food products to the global challenges associated with feeding the world by contributing to meet the provision of high-quality, safe and nutritionally valuable food and food products; and be able to work with others in a multicultural society, realize morality, ethics, and professional ethics.

Course Synopsis and Methodology:

1. Study plan

Study Plan for Master of Science (Innovative Food Science and Technology) for Academic Year 2022

Plan A1 (Research only)
Plan A2 (Course works and research)
Plan B (Course works and research by independent study)

2. Course Content

1) Thesis

Thesis
Independent Study in Food Science and Technology

2) Core courses

Advanced Statistics and Experimental Design for Agro-Industry
Research Methodology for Agro-Industry
Emerging Food Processing Technologies
Advanced Food Analytical Techniques
Seminar 1
Seminar 2

3) Elective courses can be divided into 2 groups of subjects. Student can choose.

3.1) Food Industrial Technology and Innovation

Food Industrial Research Project
Professional Experience in Agro-Industry
Advanced Professional Experience in Agro-Industry
Big Data Analytics for Agro-Industry
Project Management Professional for Agro-Industry
Food Business Management
Quality Control Design in Food Industry
Food Safety and Standards for Global Market
Valorization of Food Processing By-products
Advanced Food Product Innovation
Shelf Life Prediction of Food Products

Innovations in Food Packaging
Consumer Trends and Technology
Tea Science and Innovation
Coffee Technology
Economical Northern Fruits and Vegetables Technology
Future Foods
Nanotechnology in Food
Perception and the Chemical Senses of Food Products
Starch and Hydrocolloids in Designing Food Products
Trends in Food Science and Technology
Principles of Food Science and Technology
Global Food Industry
Agricultural Logistics Management

3.2) Food Chemistry and Nutrition

Chemistry of Food Macronutrients
Functional Foods and Nutraceuticals
Applied Food Proteins Chemistry
Alternative Protein Food
Dietary Phytochemicals and Chemopreventive Role
Metabolomics in Food Research
Lifecycle, Nutrigenetics and Personalized Nutrition
Food Structures, Digestion and Health

Graduation Conditions:

- Complete all required courses
- Thesis oral defense
- Thesis submission
- English language: MFU-TEP 65 / TOEFL (IBT) 72 / TOEFL (ITP) 543 / IELTS 6 or English score from other sources (see the MFU announcement)
- Publication (s): Journal (with peer review) or Proceedings in the International Conference or Patent

Applicant Qualifications

Students with a bachelor's degree in Food Science, Biology, Chemistry, Biochemistry, Nutrition, Biotechnology, Agricultural and related fields with cumulative undergraduate GPA ≥2.5 and TOFEL score ≥450 are encouraged to join the program. The program admissions committee makes all admission considerations on a case-by-case basis.

Document Required

- TIPP application form (Download at: https://tica-thaigov.mfa.go.th/en/page/75500-tipp-application-form?menu=605b13dbb6f1b76ed31778b3)
- Medical Report (If candidates had submitted other health certificates without the TICA medical report form, their application will not be accepted for consideration)
- Transcript of Bachelor's degree (to show the courses that you have learnt throughout Bachelor's degree)
- Certificate of Bachelor's degree
- English test score (TOFEL ≥450, IETLS 5.0)
- Recommendation Letter (At least 3 people)
- Thesis proposal or other documents (As university request)
- A copy of passport

Contact:

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***The application procedure will complete when TICA has received the hard copy of the application form and other related documents through the Royal Thai Embassy/Permanent Mission of Thailand to the United Nations/Royal Thai Consulate – General accredited to eligible countries/territories.