



Course Outline

Online International Training Course via Zoom Meeting

1. Course Title:

Contribution of Food Science and Technology to the Next Normal of Food Industry

2. Duration:

9-10, 16-17, and 23-24 June 2020 (6 Days)

3. Background and Rational:

TICA: Thailand International Cooperation Agency

TICA is a national focal point for Thailand's international development cooperation. TICA was established in 2004 to realize Thailand's aspiration to be a contributor of development cooperation. Believing that global challenges are best addressed by international cooperation and global partnership, today we continue to strengthen our contribution to achieve global development agenda through various capacity-building and human resources development programmes. In response to the recent changes in the global landscape of development cooperation, especially through the concept of South-South and Triangular Cooperation, TICA continues to realign our focuses in order to deliver Thailand's commitment to be a relevant partner in global agendas including the 2030 Agenda for Sustainable Development.

NFI: National Food Institute

The National Food Institute (NFI) was founded in 1996 by collective support of both government and private sectors. NFI is an independent organization to promote development of Thailand's food industrial sector. The mission of NFI is to provide academic and technical knowledge and update information that can enhance food research and development within the industry of the food sector. At present, NFI has arranged the training course more than 50 courses per year, including food safety standard such as GMP and HACCP training course. In

addition, government organizations have confidence in NFI to organize several training course related to food production and food safety as well as international organizations like the World Association of Industrial and Technological Research Organizations (WAITRO). Also, NFI had organized the training course of “Train the Trainer: Food Safety Management” during 2017-2019 supported by Thailand International Cooperation Agent (TICA) under the Annual International Training Course (AITC) project.

Food Industry is an important industry playing a role to supply food for human consumption and economic development all over the world. This industry has been changing in technology innovation to meet dynamic change of consumer demands. Food science is the study of physical, biological, and chemical makeup of food. It covers chemistry, biology, molecular and genetic, nutrition, and safety related to food processing. Food technology is used to develop and manage the processes by which food is transformed from a raw material to edible goods which is purchased by individual consumers. Therefore, the knowledge about food science and technology could develop food product, food safety, and promote consumer health. At present, Coronavirus 2019 disease (COVID-19) has spread rapidly to many countries and challenged food industry in various aspects including operations, safety, supply chain, emergency responses, incident management, and other unanticipated impacts. Furthermore, the COVID-19 has also changed consumer perception about food products. This training course, “Contribution of Food Science and Technology to the Next Normal of Food Industry” can turn up opportunities for manufacturers and food-related organizations to improve their knowledge and enhance their operations. It may also encourage them to get through the crisis and increase customer trust through adaptation of food science and technology.

As one of the world’s leading food producer, Thailand has advanced knowledge in food science and technology obviously seen from the new technology and innovation used for food processing. In addition, Thai government has supported food producers to reach high standards of safety and quality. Annual International Training Course (AITC) is projected to build the network/relationship between Thailand and other countries. Food security is one topic of AITC and it includes food security, food safety, food production, and postharvest technology.

4. Objectives:

The program is designed to:

- provide knowledge about food science and technology
- enhance food quality and safety through food science and technology
- share knowledge about food industry management during and after COVID-19 crisis
- establish and strengthen relationships among the member organizations involved in food industry

5. Course Contents:

5.1 Course Outline

This training course introduces the concept of food science and processing. The main subjects cover food trend, food chemistry, food processing, food additive, food packaging, logistic for food product, food safety, postharvest technology, food product marketing, and food industry management under COVID-19 crisis. Apart from basic knowledge in food processing, participants will develop their skills to evaluate alternative food manufacturing methods.

5.2 Online Learning Instruction

Participants will study via online learning by ZOOM MEETING. The time in this training is using Thai local time.

5.3 Practices

- Pre- and post-test at before and after training
- Online workshop
- Experience exchange on the food science and technology between speakers and the member organization

5.4 Study Trips/ Field Trips

This training course provides virtual visit of food manufacturers or food-related organizations in Thailand to give participants extensive experience

5.5 Advance Assignments

1) Country Report

Participants must write their country report ranging from 3-5 pages, consisting of their country information such as general information, future trend of the development issue, challenge and opportunities. It is required participants to submit on the opening date for training course.

2) Project Assignment

Participants select their local food products as a case study and optimize production processes to improve product quality and safety

6. Participants Criteria:

Applicants must fulfill the following requirement:

- Be nominated by their respective government;
- Education: Bachelor's degree or higher in the area related to the subject or working or have work experiences in the area related to the subject \geq 1 years.
- Language: proficiency in English (speaking, reading and writing)

7. Attendance and Evaluation

Participants who completed the online training will receive E-certificate base on:

- Real time Online Class (not less than 80%)
- Online class participation and discussion
- Online presentation and report
- Online evaluation

8. Venue:

This training course is online training and operates on ZOOM MEETING. Testing and assignment creation and distribution is accomplished through Google Drive or Email.

9. Expected Results:

- Participants can explain about food chemistry, food processing, food additive, food packaging, postharvest technology, and logistics for food product
- Participants can choose appropriate processes for certain food product
- Participants can apply food science and technology in their own organization

10. Organization/ Institution:

- **Implementing Agency;**

National Food Institute

- **Contact Person**

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11. Expenditure/Funding:

Thailand International Cooperation Agency (TICA)

Government Complex, Building B (South Zone), 8th Floor,

Chaengwattana Rd. Laksi District, Bangkok 10210 THAILAND

Website: <https://tica-thaigov.mfa.go.th/en/index>

Email: aitc@mfa.mail.go.th

Schedule for the Online Training Programme:

Contribution of Food Science and Technology to
the Next Normal of Food Industry

Date/ Period /Topic	Time (Thailand time)	Content	Speaker	Note
Day 1 : 9 June 2022				
Opening Ceremony	09.30 – 10.30	- Opening Ceremony - Orientation to provide information about course outline, online instructional material, testing, and ongoing project submission. - Pre-test	Mrs. Anong Paijitprapapon President of National Food Institute	
Trends in Food Industry and Innovation	10.30 – 12.00	- Impact of COVID-19 on Processed Food Market - Food Innovations and Trends after COVID-19	Asst. Prof. Surapong Pinitglang	

Date/ Period /Topic	Time (Thailand time)	Content	Speaker	Note
	<i>12.00 - 13.00</i>	<i>Lunch Break</i>		
Food Safety	13.00 - 16.00	- Introduction to Food Safety Standards - Transmission of COVID-19 by Food and Food Packaging - Food Safety Management in COVID-19	Prof. Suwimol Keeratipibul	
Day 2 : 10 June 2022				
Food Chemistry	09.00 – 12.00	- Introduction to Nutrients (Carbohydrate, Fat, Protein, Vitamin, Minerals, Food Pyramids) - Chemical Deteriorations of Food Products (Non-enzymatic and Enzymatic Reactions) - Introduction to Food Quality - Chemical Hazards Formed During Thermal Processing and Food Allergen	Asst. Prof. Kitipong Assatarakul	
	<i>12.00 - 13.00</i>	<i>Lunch Break</i>		
Food Processing	13.00 - 16.00	- Introduction to Food Processing - Principles of Thermal Processing (Blanching, Pasteurization, Sterilization, Canning) - Undesired Consequences After Thermal Processing - Principles of Non-thermal Processing (UV, Preservatives, and High Pressure Process (HPP))	Asst. Prof. Kitipong Assatarakul	
Day 3 : 16 June 2022				
Food Additive	09.00 – 12.00	- Definition of Food Additive - Key Terminology Associated with Food Additives - A Description of The Food Additive Functional Classes	Asst. Prof. Intrawoot Soppavorasatit	

Date/ Period /Topic	Time (Thailand time)	Content	Speaker	Note
		- The Labelling Requirements for Food Additives		
	<i>12.00 – 13.00</i>	<i>Lunch Break</i>		
Postharvest Technology	13.00 – 16.00	- The Change of Fruit and Vegetable After Harvest - Postharvest Technology for Fruit and Vegetable - How to Maintain Postharvest Quality of Fruit and Vegetable - Effective of COVID-19 on Postharvest Management in Fruit and Vegetable	Assoc. Prof. Varit Srilaong	
Day 4 : 17 June 2022				
Food Packaging	09.00 – 12.00	- Roles of Food Packaging - How to Design Packaging for Food Product - Food Packaging Development, Trends, and Innovation - Sustainable Packaging Innovation	Assoc. Prof. Nathdanai Harnkarnsujarit	
	<i>12.00 – 13.00</i>	<i>Lunch Break</i>		
Food Product Marketing	13.00 - 16.00	- Future of Marketing: Impact of Digital Disruption and COVID-19 Crisis - Digital Marketing Strategy : Trend, Concept, and Strategy - Online Marketing for Food Products	Asst. Prof. Apichaya Lilavanichakul	
Day 5 : 23 June 2022				
Logistics for Food Product	09.00 – 12.00	- Food Supply Chain Challenges During COVID-19 - Smart Agri-Food Logistics for the Future - Cold Chain Management	Assoc. Prof. Thananya Wasusri	

Date/ Period /Topic	Time (Thailand time)	Content	Speaker	Note
	12.00 – 13.00	<i>Lunch Break</i>		
Virtual Field Trip	13.00 – 16.00	- <i>Thai Food Heritage Exhibition</i> : The exhibition explains the origins of Thai food from raw materials, cooking methods, the taste of Thai food and the innovation of Thai food - <i>Factory Visit</i> : Virtual visit of food manufacturers or food related organizations in Thailand to give participants extensive experience	Moderator:	
Day 6 : 24 June 2022				
Project Presentation	09.30 – 11.00	- Presentation - Post-test	National Food Institute	
Closing Ceremony	11.00 – 12.00	- Closing Ceremony - Certificate Presentation	National Food Institute	

Note: - Lunch break at 12.00-13.00 every day

-Please note that the schedule is subject to change.

-Teaching format shall be arranged via Zoom Meeting system

-Training media and lecture will be in English