



Course Syllabus (Academic Year 2021)

School of Interdisciplinary Studies, Kanchanaburi Campus, Mahidol University

1. **Course No. and Title** : KAFT 237 Food Processing 1
Credit (study hours) : 4(3-3-7)
2. **Program Name** : Bachelor of Science in Food Technology
3. **Pre/co-requisite** : None
4. **Class Semester** : 2st Semester Academic Year 2021
Class Schedule & Venue : Monday
Lecture (Hybrid) at 09:00 – 12:00 Room R2216&R2217
Lab Onsite at Food Processing Room 13:00-16:00
5. **Class Coordinator** : Assistant Professor Dr. Jarupat Luecha
Room : L220 Email : jarupat.lue@mahidol.edu

6. Course Description

Unit operations, properties of raw food material, postharvest handling for agricultural materials, food deterioration; principles of food preservation methods such as temperature and water activity control, and effects of preservation methods on food quality; principles of food processing techniques, such as minimal processing, heating, pasteurization and sterilization, chilling and freezing, high pressure processing, drying and evaporation, extrusion and fermentation; operation of food processing; apply mass balance in food processing; work effectively as a team

7. Course Objectives / Course Learning Outcomes (CLOs)

No.	Objectives / CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
7.1	Students will be able to explain the importance of each step in the food processing ranging from raw material preparation to final product นักศึกษาสามารถอธิบายถึงความสำคัญของแต่ละขั้นตอนการแปรรูปผลิตภัณฑ์อาหารตั้งแต่ขั้นตอนการเตรียมวัตถุดิบจนได้เป็นผลิตภัณฑ์สุดท้าย	S1: Skill in selecting appropriate raw material for food production S3: Skill in identifying problem occurred during food process	G1: Decision Making G2: Data acquisition G4: Associating skill	K1: Postharvest handling of agricultural materials K3: Food Processing	1

No.	Objectives / CLOs	Expected Skills / Knowledge			PLOs
		Specific	Generic	Knowledge	
7.2	Students will be able to explain how the raw material is processed into food and demonstrate the main factors affecting the quality of food products นักศึกษาสามารถอธิบายหลักการในการแปรรูปอาหารด้วยกรรมวิธีต่างๆ และปัจจัยสำคัญที่มีผลต่อคุณภาพของอาหาร	S2: Skill in controlling food production process S3: Skill in identifying important characteristics of food	G1: Decision making skill G4: Associating skill	K3: Food processing	1
7.3	Students will be able to explain the principles of equipment used in food industry. นักศึกษาสามารถอธิบายหลักการทำงานของเครื่องมืออุปกรณ์ที่ใช้ในกระบวนการแปรรูปอาหารในระดับอุตสาหกรรม	S2: Skill in controlling food production process S3: Skill in identifying important characteristics of food	G1: Decision making skill G4: Associating skill	K3: Food processing K6: Food Engineering	1
7.4	Students will be able to work as a team with ethics. นักศึกษาสามารถทำงานเป็นทีมอย่างมีจริยธรรม		G3: Ethics G15: Interpersonal skill G16: Teamwork		5

8. Class Instructor List

8.1 Dr. Amnat Jarerat (AJ)	E-mail: amnat.jar@mahidol.ac.th
8.2 Assistant Professor Dr. Jarupat Luecha (JL)	E-mail: jarupat.lue@mahidol.edu
8.3 Dr. Chutikarn Kapcum (CK)	Email: kapcum.chu@gmail.com
8.4 Aj.Thanakorn Thiengnoi (TT)	Email: thiengnoi@hotmail.com
8.5 Assistant Professor Dr. Natteewan Udomsilp (NU)	Email: Natteewan.udo@mahidol.ac.th
8.6 Mrs. Amphap Ekkajith (AE)	Email: namleab3@hotmail.com
8.7 Invited lecturer Dr. Plengsuree Thiengnoi (PT)	Email: plengsuree.thi@mahidol.ac.th

9. Course Outline

Week	Date	Contents	CLOs	Instructor
1	10 JAN 2022	Lecture: Basic principle of Food Processing (Online)	7.1	PT
		Lecture: Postharvest handling of agricultural crops (Online)		TT
2	17 JAN 2022	Lecture: Fermentation (Online)*	7.1	AJ
		Lecture: Chilling and Freezing (Online)*		CK
3	24 JAN 2022	Lecture: Postharvest handling of land and aquatic animals (Hybrid)	7.1	PT

Week	Date	Contents	CLOs	Instructor
		Lab all sec: Part1: Postharvest handling of agricultural crops Part2: Meat and fishery quality evaluation		PT,TT,AE
4	31 JAN 2022	Lecture: Ambient temperature processing (Online)	7.1	PT
		Lab all: Raw material preparation		JL,AE
5	7 FEB 2022	Lecture: Chemical Preservation (Online)	7.1, 7.3	PT
		Lab all: Chemical Preservation		NU,AE
6	14 FEB 2022	Lecture: Frying, Blanching, Baking and Roasting (Hybrid)	7.3	PT
		Lab Sec1: Frying Lab Sec2: Blanching		PT,JL,AE
7	21 FEB 2022	Lecture: Evaporation (Hybrid)	7.1	JL
		Lab Sec1: Blanching Lab Sec2: Frying		JL,AE
8	Mid-term Examination (28 FEB-4 March 2022)			
9	7 MAR 2022	Morning Lab Sec1: Freezing	7.1	CK, AE
		Afternoon Lab Sec2: Freezing		
10	14 MAR 2022	Morning Lab Sec1: Tempe	7.3	AJ, AE
		Afternoon Lab Sec2: Tempe		
11	21 MAR 2022	Lecture: Pasteurization (Hybrid)	7.3	JL
		Lab Sec1: Retort Canning Lab Sec2: Spray Drying		JL, CK, AE
12	28 MAR 2022	Lecture: Sterilization (Hybrid)	7.1-7.3	JL
		Lab Sec1: Spray Drying Lab Sec2: Retort Canning		JL, CK, AE
13	4 APR 2022	Lecture: Extrusion (Hybrid)	7.1	JL
		Lab Sec1: Extrusion Lab Sec2: Dehydration		JL, CK, AE
14	11 APR 2022	Lecture: Dehydration 1 (Hybrid)	7.1	JL
		Lab Sec1: Dehydration Lab Sec2: Extrusion		JL, CK, AE
15	18 APR 2022	Lecture: Dehydration 2 (Hybrid)	7.1	JL
		Lab: Big Cleaning Day		All students

Week	Date	Contents	CLOs	Instructor
16	25 APR 2022	Presentation/Wrap Up	7.1-7.4	All students
17	Final Examination (2-13 May 2022)			
18				

* For final examination

10. Course Assessment

No.	Assessment methods		CLOs	Week	Weight Distribution (%)
11.1	Midterm examination	3 hours	7.1-7.3	1,3-7	28
11.2	Final examination	3 hours	7.1-7.2	2, 9-15	28
11.3	Laboratory reports (Group)	In class	7.1-7.4	2-15	24
11.4	Laboratory participation	In class	7.4	1-16	3
11.5	Term project (Group)	In class	7.1-7.4	1-16	10
11.6	Class participation	In class	7.4	1-16	5
11.7	Evaluation within group		7.4	1-16	2
				Total	100

11. Grading System

Grade	Score	Grade	Score	Grade	Score	Grade	Score
A	≥ 80 %	B	70 – 74.99%	C	60 – 64.99%	D	50 – 54.99%
B+	75 – 79.99%	C+	65 – 69.99%	D+	55 – 59.99%	F	< 50 %

12. References

12.1 วิไลรังสาดทอง.2546. เทคโนโลยีการแปรรูปอาหาร:Food processing technology. บริษัทแมกซ์แอนด์เจอร์นัล
พับลิเคชั่นจำกัด,กรุงเทพฯ

12.2 คณาจารย์ภาควิชาวิทยาศาสตร์และเทคโนโลยีการอาหาร.2546. วิทยาศาสตร์และเทคโนโลยีการอาหาร:Food science
and technology. คณะอุตสาหกรรมเกษตรมหาวิทยาลัยเกษตรศาสตร์,พิมพ์ครั้งที่4,สำนักพิมพ์ มหาวิทยาลัยเกษตรศาสตร์,
กรุงเทพฯ.

12.3 Brennan, J.G. 2006. Food Processing Handbook, Wiley-VCH, Weinheim.

12.4 Ramaswamy, H and Marcotte, M. 2006. Food processing: principles and applications, Taylor & Francis,
Boca Raton, FL.

12.5 Other recommended reading materials by instructors.