

Course Syllabus

1. Name of Curriculum

Bachelor of Science (Food Science & Technology), Mahidol University International College

2. **Course Code:** ICFS 442 **Course Title:** Food Engineering II

3. **Number of Credits:** 4 (Lecture/Lab) (3-2)

4. **Prerequisite(s):** ICFS 441

5. **Type of Course:** Required

6. **Trimester / Academic Year:** 2nd trimester / 2003-04

7. Course Description

Continuation of Food Engineering I. The study of the principles and measurement of various physical properties of foods that measure the overall quality of fresh and prepared foods. These are properties that are important in handling, preparing, processing, preserving, packaging, storing, and distribution of foods, also the principles and limitations of instrumental methods that are currently used to determine physical properties of foods.

8. Course Objectives

1. Students will know the basic concepts of thermodynamics, heat and mass transfer.
2. Students will be able to apply material balances and energy balances to the field of food engineering.
3. Students will be able to understand equipment used in the food industry.

9. Course Outline

Week	Topics			Instructor	
	Lecture/Seminar	Hour	Lab		Hour
1	Introduction to Food Engineering II	4			Dr. Koo-Amornpattana
2	Material and Energy Balances	4			Dr. Koo-Amornpattana
3	Mass Transfer Theory	4			Dr. Koo-Amornpattana
4	Heat Transfer Theory	4			Dr. Koo-Amornpattana
5	Heat Transfer Theory (continued)	4			Dr. Koo-Amornpattana
6	Midterm Examination	2			Dr. Koo-Amornpattana
7	Heat Transfer Application: heat exchangers, dryers.	4			Dr. Koo-Amornpattana
8	Heat Transfer Application: Evaporation	4			Dr. Koo-Amornpattana
9	Contact-Equilibrium Separation Processes (Theory)	6			Dr. Koo-Amornpattana
10	Contact-Equilibrium Separation Processes (Application): Gas Absorption, Extraction, Crystallization	4			Dr. Koo-Amornpattana
11	Contact-Equilibrium Separation Processes (Application): Membrane separation, distillation.	4			Dr. Koo-Amornpattana
	Total	44			

10. Teaching Methods

1. Lecture
2. Class exercises
3. Homework exercises

11. Teaching Media

1. Textbooks
2. Handouts
3. Powerpoint Presentations

12. Course Achievement

Assessment made from the set-forward criteria: students receiving 80% or higher will receive a grade A.

13. Course Evaluation

Components	%
Homework	5
Quizzes	5
Midterm Exam	40
Final Exam	40
Class Participation	10
Total	100

14. References

1. Earle, R.L. 1983. "Unit Operations in Food Processing, 2nd Ed. Pergamon Press, Oxford.
2. Singh, RP and Heldman, DR. 2001. "Introduction to Food Engineering", 3rd Edition. Academic Press, UK.
3. Farrall, AW. 1976. "Food Engineering Systems", AVI Publishing Co., Westport, CN.

15. Instructor

TBA

16. Course Coordinator

Dr. Wanida Koo-Amornpattana