

SYLLABUS:

Date / Revision 23 May 2015 / 02 May 2017 / PP
Faculty Life Sciences (LS)
Study Program Food Technology (FTE)

SUBJECT: Food Packaging and Storage

1 Basic Information

1.01	Subject Name	Food Packaging and Storage
1.02	Semester	4
1.03	Level	1
1.04	SKS	3
1.05	Mandatory / Curriculum	D-02
1.06	Subject Code	FOPS
1.07	Subject Code	FOPS
1.08	Year	2017 (7)
1.09	Quality Control	Final Test, OFSE, see evaluation
1.10	Limitations	Min 12 and Max 32 students in one class
1.11	Combined with	None
1.12	Pre-requisite	Chemistry, Chemistry Laboratory, Organic Chemistry, Biology, Biochemistry, Food Chemistry
1.13	Responsible	Dr. Tutun Nugraha
1.14	Revision	15-05-2017/pp

2 Description of Subject

This course discusses about the importance of food packaging and food storage; properties, advantage and limitation of food packaging (plastic polymers, glass, metal, paper and paper-based) and their evaluation of quality, safety and interaction with foods; the trends in food packaging (aseptic packaging of foods; active and intelligent packaging of foods; modified atmosphere packaging, etc); packaging materials used for and criteria for selection of packaging materials based on food commodity; deteriorative reaction in foods during storage; materials handling; shelf life of foods; logistic; control of storage and distribution.

3

Objectives

This course is among the specialize courses that are given to students in Food Technology Department. The course is more applied in nature and will provide basic knowledge required in the design of food products particularly the concepts related to the food packaging and storage which typically occur at the end of the food processing sequence. The discussion also include the latest trend that occur in the food technology industries.

4

Competency

Through this subject students will understand various concepts relevant to food packaging and storage currently used in the food industries, which includes

- the importance of packaging and storage of food products.
- the properties, advantage and limitation of food packaging (plastic polymers, glass, metal, paper and paper-based) and their evaluation of quality, safety and interaction with foods.
- observe the trends in food packaging.
- distinguish and choose the type of packaging material that is safe to use in food packaging and storage of materials in accordance with the type of food.
- describe deteriorative reaction in foods and controlling factors.
- predict the shelf life of food product.
- briefly explain methods of material handling, storage, logistics, and distribution of food products.

5

Learning Approach / Methodology

- Lectures/ Class contact (time-tabled) supplemented with interactive questions and answers to build the projects;
- Tutorial/Laboratory/Practice Classes: preview of materials, revision and/or reports writing;
- Student Study Effort: homework/assignment; preparation for test/quizzes/ examination.
- Writing assignments/presentations

6

Evaluation

5.1	Absence maximum	25%
5.2	Participation in Discussion	-
5.3	Homework / Classwork	10 Points
5.4	Presentation /Simulation	10 Points
5.5	Daily Quiz	20 Points
5.6	Final Examination	60 Points
	Total	100 Points

7 Text Book and Reference

1	Main Text Book: <ul style="list-style-type: none"> Food and Package Engineering, Scott A Morris, Wiley Blackwell, 1st ed, 2011 Food Processing Technology, Principles and Practice – Fellows – 4th Edition – Woodhead Publishing
2	Supplement Textbooks: <ul style="list-style-type: none"> Food Packaging, Principles and Practice – Robertson – 3rd Edition – CRC Press Emerging Food Packaging Technologies, Ed. Kit L Yam, Dong Sun Lee, Woodhead Publishing Limited, 2012

8 Content / Topics of Lecture

Week	Content/ Topics of Lecturing	Text Book Chapter	Remark
1	Introduction <ul style="list-style-type: none"> Important functions of package Different environments to be considered where package has to perform its functions; innovation in food packaging 	Morris, Blackwell, Chapter 1	1 x 3 x 50 minutes
2	Properties, Advantage and Limitation of Plastic Polymers <ul style="list-style-type: none"> Properties, advantage and limitation of plastic polymers and their evaluation of quality, safety and interaction with foods 	Morris, Blackwell, Chapter 3, Robertson, Chapter 2 &4 Yam, Lee Chapter 17	1 x 3 x 50 minutes
3	Properties, Advantage and Limitation of Glass Packaging Materials <ul style="list-style-type: none"> Properties, advantage and limitation of glass packaging materials and their evaluation of quality, safety and interaction with foods 	Morris, Blackwell, Chapter 3 Fellows, Chapter 8	1 x 3 x 50 minutes
4	Properties, Advantage and Limitation of Metal Packaging Materials <ul style="list-style-type: none"> Properties, advantage and limitation of metal packaging materials and their evaluation of quality, safety and interaction with foods 	Morris, Blackwell, Chapter 3 Robertson, Chapter 7	1 x 3 x 50 minutes
5	Properties, Advantage and Limitation of Paper and Paper-Based Materials <ul style="list-style-type: none"> Properties, advantage and limitation of paper and paper-based packaging materials and their evaluation of quality, safety and interaction with foods 	Morris, Blackwell, Chapter 3 Robertson, Chapter 6	1 x 3 x 50 minutes
6	Trends in Food Packaging <ul style="list-style-type: none"> Edible packaging materials Biobased biodegradable packaging materials 	Robertson, Chapter 3 Yam, Lee Chapter 21	1 x 3 x 50 minutes

7	Trends in Food Packaging <ul style="list-style-type: none"> • Aseptic packaging of foods • Packaging of microwavable foods • Active and intelligent packaging • Modified atmosphere packaging 	Robertson, Chapter 13,14,15,16 Yam, Lee Chapter 8	1 x 3 x 50 minutes
8	MIDTERM SEMESTER BREAK		
9	Packaging of Various Food Commodities <ul style="list-style-type: none"> • Packaging materials used for the following foods: flesh foods, horticultural products, dairy products • Criteria for selection of packaging materials for the following foods: flesh foods, horticultural products, dairy products 	Robertson, Chapter 17, 18, 19	1 x 3 x 50 minutes
10	Packaging of Various Food Commodities <ul style="list-style-type: none"> • Packaging materials used for the following foods and beverages: cereals, snack foods, confectionery, beverages (water, carbonated soft drinks, etc) • Criteria for selection of packaging materials for the following foods and beverages: cereals, snack foods, confectionery, beverages (water, carbonated soft drinks, etc) 	Robertson, Chapter 20, 21	1 x 3 x 50 Minutes
11	Deteriorative reaction in Foods <ul style="list-style-type: none"> • Enzymatic reaction • Chemical reaction • Physical changes • Biological changes 	Morris, Blackwell, Chapter 7 Robertson, Chapter 11	1 x 3 x 50 Minutes
12	Deteriorative reaction in Foods <ul style="list-style-type: none"> • Rate of deteriorative reactions • Intrinsic and extrinsic factor controlling rate of deteriorative 	Morris, Blackwell, Chapter 7 Robertson, Chapter 11	1 x 3 x 50 minutes
13	Shelf Life of Foods <ul style="list-style-type: none"> • Definition • Shelf life determination • Predicting microbial shelf life • Accelerated shelf life testing (ASLT) • Determining shelf life from the customer side • Shelf life device 	Morris, Blackwell, Chapter 7 Robertson, Chapter 12	1 x 3 x 50 minutes
14	Materials Handling and Storage <ul style="list-style-type: none"> • Materials handling • storage condition 	Fellows, Chapter 26	1 x 3 x 50 minutes
15	Logistic and distribution <ul style="list-style-type: none"> • Factory warehousing for ingredients and products • Distribution warehousing 	Morris, Blackwell, Chapter 9 Fellows, Chapter 26	1 x 3 x 50 minutes
16	Final Examination		