

SYLLABUS:

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

SUBJECT: Food Chemistry Laboratory

1 Basic Information

1.01	Subject Name	Food Chemistry Laboratory
1.02	Semester	5
1.03	Level	1
1.04	SKS	1
1.05	Mandatory / Curriculum	D-02
1.06	Subject Code	FOCL
1.07	Subject Code	FTE-D-LS-117
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	Food Chemistry, Chemistry and Lab, Physical/Analytical Chemistry & Lab, Organic Chemistry and Lab, Biochemistry
1.13	Responsible	Dr. Tutun Nugraha
1.14	Revision	15-05-2017/pp

2 Description of Subject

The major objective for this course is to learn about the principles of and methods for of analysis of the chemistry of food. This course will also provide students with the opportunity to apply various basic principles that were given in the class room. Various basic concepts such as chemistry, organic chemistry and physical/analytical chemistry including lab work done in the previous semester will become useful in this subject. Students will carry out various measurement followed by the relevant calculation to elicit the process being studied. Students will be encouraged to employ logic and original thinking in order to use both qualitative and quantitative methods to solve a variety of problems.

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Objectives

- This course focuses on providing students the opportunity to further develop their basic laboratory skills, being applied to carry out analysis in the chemistry of food. Various previous subjects taken including the relevant lab work will be utilized here. This should further strengthen their understanding and deepening it at the same time.

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Competency

Through this subject students will understand various concepts relevant to food chemistry laboratory currently used in the food industries, which includes

- Laboratory techniques common to the basic and applied or analysis of the chemistry of food
- The appropriate analytical technique when presented with a practical problem
- Practical proficiency in food analysis laboratory
- Written laboratory technical report

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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

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Evaluation

5.1	Absence maximum	25%
5.2	Report	20 Points
5.3	Lab journal/safety	10 Points
5.4	Presentation /Simulation	-
5.5	Daily Quiz	10 Points
5.6	Final Examination	60 Points
	Total	100 Points

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Text Book and Reference

1	Main Text Book: <ul style="list-style-type: none"> • Fennema's Food Chemistry 4th edition. 2008. Srinivasan Damodaran, Kirk L. Parkin, Owen R. Fennema
2	Supplement Textbooks:

8 Content / Topics of Lecture

Week	Content/ Topics of Lecturing	Text Book	Remark
1	General Experiment Rules in Laboratory <ul style="list-style-type: none"> Introduction Safety procedure, material safety data sheet, personal protective equipment Experiment schedule Introduction to Research project by Students 		1 x 3 x 50 minutes
2	Rennin Enzyme Effect on Milk Protein <ul style="list-style-type: none"> Prelab 	Damodran, Parkin, Fennema, Chapter 5, 6	1 x 3 x 50 minutes
3	Rennin Enzyme Effect on Milk Protein <ul style="list-style-type: none"> Milk protein and Rennin enzyme The effect of the temperature on rennin enzyme activity 	Damodran, Parkin, Fennema, Chapter 5, 6	1 x 3 x 50 minutes
4	Carbohydrate Analysis by Fehling's Test and Microscopic Appearance of Starch <ul style="list-style-type: none"> Prelab 	Damodran, Parkin, Fennema, Chapter 3	1 x 3 x 50 minutes
5	Carbohydrate Analysis by Fehling's Test and Microscopic Appearance of Starch <ul style="list-style-type: none"> The various carbohydrate using Fehling's Test method Several principles of carbohydrate determination The physical changes in starch to various treatment, such as heating and chemical The observation of carbohydrate by microscope 	Damodran, Parkin, Fennema, Chapter 3	1 x 3 x 50 minutes
6	Free Fatty Acid (FFA), Acid Value, and Peroxide Value <ul style="list-style-type: none"> Prelab 	Damodran, Parkin, Fennema, Chapter 4	1 x 3 x 50 minutes
7	Free Fatty Acid (FFA), Acid Value, and Peroxide Value <ul style="list-style-type: none"> The principle of some quality characteristics of fats and oils Free fatty acid, acid value, and peroxide value 	Damodran, Parkin, Fennema, Chapter 4	1 x 3 x 50 minutes
8	MIDTERM SEMESTER BREAK		
9	Plant Pigments <ul style="list-style-type: none"> Prelab 	Damodran, Parkin, Fennema, Chapter 9	1 x 3 x 50 minutes
10	Plant Pigments <ul style="list-style-type: none"> Plant pigments the effect of pH on plant pigments Heat treatment on plant pigments 	Damodran, Parkin, Fennema, Chapter 9	1 x 3 x 50 Minutes

11	Meat Pigments • Prelab	Damodran, Parkin, Fennema, Chapter 9	1 x 3 x 50 Minutes
13	Meat Pigments • Meat pigment and heme pigment • Some of the reactions of heme pigment	Damodran, Parkin, Fennema, Chapter 9	1 x 3 x 50 minutes
14	Enzyme Kinetics • Prelab	Damodran, Parkin, Fennema, Chapter 6	1 x 3 x 50 minutes
15	Enzyme Kinetics • The act of enzyme as unchanged catalyst to speed up reactions in cells • Vmax and Km from a graph of reaction rate vs substrate concentration	Damodran, Parkin, Fennema, Chapter 6	1 x 3 x 50 minutes
16, 17	Final Examination		