PORTOFOLIO
FOOD ANALYSIS

ACADEMIC YEAR 2019/2020 ODD SEMESTER

Course Coordinator:
Prof. Dr. Titik Taufikurohmah, M.Si

Teaching Team:
Prof. Dr. Titik Taufikurohmah, M.Si ; Rusmini S.Pd., M.Si

CHEMISTRY DEPARTMENT

FACULTY OF MATHEMATICS AND SCIENCE
UNIVERSITAS NEGERI SURABAYA

TABLE OF CONTENT

A. SEMESTER LEARNING ACTIYITY PLAN

A.1. COURSE IDETITY

Module Name	Food Analysis
Module level	Bachelor
Abbreviation, if applicable	8420402001
Sub-heading, if applicable	-
Course included in the module, if applicable	-
Semester/term	7th/Fourth year
Module coordinator(s)	Prof. Dr. Titik Taufikurohmah, M.Si.
Lecturer(s)	Prof. Dr. Titik Taufikurohmah, M.Si. , Rusmini S.Pd., M.Si
Language	Bahasa Indonesia
Classification within the curriculum	Elective Course
Teaching format/class hours per week during the semester:	2 hours lectures (50 min / hour)
Workload:	2 x 50 minutes lectures, 2 x 60 minutes structured activity, 2 x 60 minutes individual activity, 14 weeks per semester, 79,33 total hours per semester ~ 3.18 ECTS**
Credit points:	2 CU = 2 x 1.59 = 3, 18 ECTS
Prerequisites course(s):	Analytical chemistry 3, analytical chemistry 4, organic chemistry 2, inorganic chemistry 2, biochemistry 2
Targeted learning outcomes:	CLO 1: Students have knowledge of the basic principles of analysis of foodstuffs both macro and micro nutrient ingredients using appropriate methods both classical (gravimetric and volumetric) and modern (UV-Vis Spectrophotometry, AAS, Chromatography and Electrical), as well as method selection. based on exact material properties according to AOAC standard methods, food safety principles and the latest journals CLO 2: Skilled students use tools in analyzing food ingredients, both macro and micro nutrient ingredients, using appropriate methods, both classical (gravimetric and volumetric) and modern (UV-Vis Spectrophotometry, AAS, Chromatography and Electric), as well as method selection based on exact material properties according to AOAC standard methods, food safety principles and the latest journals CLO 3: Students have the ability to collaborate and are responsible in carrying out the process of analyzing foodstuffs both macro and micro nutrient food ingredients using

	appropriate methods both classical (gravimetric and volumetric) and modern (UV-Vis, AAS, Chromatography and Electrical Spectrophotometry), as well as selecting a method based on the properties of the right material according to AOAC standard methods, food safety principles and the latest journals CLO 4: Students have the ability to communicate the results of analysis of foodstuffs both macro and micro nutrient ingredients using appropriate methods both classical (gravimetric and volumetric) and modern (UV-Vis Spectrophotometry, AAS, Chromatography and Electrical), as well as the selection of methods based on exact material properties according to AOAC standard methods, food safety principles and current journals.
Content:	1. preliminary food analysis 2. food analysis methods 3. data analysis techniques 4. analysis of water content in food 5. analysis of ash content in food 6. analysis of mineral content in food 7. analysis of vitamin levels in food 8. Protein content analysis in food 9. analysis of fat content in food 10. analysis of carbohydrate content in food 11. analysis of levels of additives in food 12. analysis of contamination levels in food 13. food safety
Study / exam achievements:	Students are considered to complete the course and pass if they obtain at least 40% of maximum final grade. The final grade (NA) is calculated based on the following ratio:

Assessment Components	Percentage of contribution
Participation	20%
Assignment	30%
Mid-semester test	20%
Final semester test	30%

Media:	Computer, LCD, White board, laboratory
Learning Methods	Individuals assignment, group assignment, discussion, presentation, and practicum
Literature:	1. Slamet Sudarmaji, dkk, 1996. *Analisis Bahan Makanan dan Pertanian*, Yogyakarta: Liberty 2. James, C.S.,1995 *Analitycal Chemistry of Foods, Blackie Academic and Professional*

	3. Artikel-artikel Journal yang relevan
Notes:	*1 CU in learning process = three periods consist of: (a) scheduled instruction in a classroom or laboratory (50 minutes); (b) structured activity (60 minutes); and (c) individual activity (60 minutes) according to the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 44 Year 2015 jo. the Regulation of Indonesia Ministry of Research, Technology, and Higher Education No. 50 Year 2018.
	**1 CU = 1,59 ECTS according to Rector Decree Of Universitas Negeri Surabaya No. 598/Un38/Hk/Ak/2019

A.2. COURSE TOPIC

Study of the basic principles of foodstuff analysis methods and data quality, in terms of chemical structure, analysis and application including validation, analysis of macro and micro-nutrients in various foodstuffs using classical and modern methods and determining appropriate analytical methods based on standard methods, food safety principles or journals which supports it is accompanied by supporting laboratory activities so that students are able to master related concepts, have skills in using tools, are able to cooperate and be responsible and can communicate their knowledge and skills scientifically and their application in the business field.

A.3. COURSE PROGRAM

<table>
<tr>
<td rowspan="2" colspan="2">UNESA (logo)</td>
<td colspan="5">UNIVERSITAS NEGERI SURABAYA
FACULTY OF MATHEMATICS AND NATURAL SCIENCE
UNDERGRADUATE PROGRAMME OF CHEMISTRY EDUCATION</td>
<td>Document Code</td>
</tr>
<tr>
<td colspan="6">RENCANA PEMBELAJARAN SEMESTER</td>
</tr>
<tr>
<td colspan="2">COURSE</td>
<td>Code</td>
<td>Course Group</td>
<td colspan="2">Credit Unit</td>
<td>Semester</td>
<td>Date</td>
</tr>
<tr>
<td colspan="2">Food Analysis</td>
<td>8420402001</td>
<td></td>
<td>T= 2</td>
<td>P= 1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td colspan="2">AUTHORIZATION</td>
<td>Compiler</td>
<td colspan="3">Coordinator</td>
<td colspan="2">Head of Study Program</td>
</tr>
<tr>
<td colspan="2">CHEMISTRY EDUCATION</td>
<td>Rusmini S.Pd., M.Si</td>
<td colspan="3">Dr. Pirim Setiarso, M.Si.</td>
<td colspan="2">Dr. Utiya Azizah, M.Pd.</td>
</tr>
<tr>
<td rowspan="12">Learning Outcomes</td>
<td colspan="8">Program Learning Outcomes (PLO)</td>
</tr>
<tr>
<td>PLO1
(KNO-1)</td>
<td colspan="7">Capable to demonstrate knowledge related to theoretical concepts about structure, dynamics, and energy, as well as the basic principles of separation, analysis, synthesis and characterization of chemicals</td>
</tr>
<tr>
<td>PLO 5
(COM-1)</td>
<td colspan="7">Applying logical, critical, systematic and innovative thinking in the context of development or implementation of science, technology, and art that regards and applies humanities in accordance with chemistry education in solving problems</td>
</tr>
<tr>
<td>PLO 6
(COM-2)</td>
<td colspan="7">Mastering the basics of the scientific method, designing and conducting research, writing scientific reports and communicating them both verbally and in writing by utilizing information and communication technology in the field of education</td>
</tr>
<tr>
<td colspan="8">Course Learning Outcomes (CLO)</td>
</tr>
<tr>
<td>CLO1</td>
<td colspan="7">Students have knowledge of the basic principles of analysis of foodstuffs both macro and micro nutrient ingredients using appropriate methods both classical (gravimetric and volumetric) and modern (UV-Vis Spectrophotometry, AAS, Chromatography and Electrical), as well as method selection. based on exact material properties according to AOAC standard methods, food safety principles and the latest journal</td>
</tr>
<tr>
<td>CLO2</td>
<td colspan="7">Skilled students use tools in analyzing food ingredients, both macro and micro nutrient ingredients, using appropriate methods, both classical (gravimetric and volumetric) and modern (UV-Vis Spectrophotometry,</td>
</tr>
</table>

		AAS, Chromatography and Electric), as well as method selection based on exact material properties according to AOAC standard methods, food safety principles and the latest journals
	CLO3	Students have the ability to collaborate and are responsible in carrying out the process of analyzing foodstuffs both macro and micro nutrient food ingredients using appropriate methods both classical (gravimetric and volumetric) and modern (UV-Vis, AAS, Chromatography and Electrical Spectrophotometry), as well as selecting a method based on the properties of the right material according to AOAC standard methods, food safety principles and the latest journals
	CLO4	Students have the ability to communicate the results of analysis of foodstuffs both macro and micro nutrient ingredients using appropriate methods both classical (gravimetric and volumetric) and modern (UV-Vis Spectrophotometry, AAS, Chromatography and Electrical), as well as the selection of methods based on exact material properties according to AOAC standard methods, food safety principles and current journals.
	Sub-CLO	
	Sub-CLO1	Understand the basic principles in proper analytical methods based on standard methods (AOAC) on food ingredients and sampling
	Sub-CLO2	Understanding how to analyze water content and micronutrients (vitamins, ash and minerals) in foodstuffs
	Sub-CLO3	Understand how to analyze macronutrients (protein, fat and carbohydrates) contained in food ingredients
	Sub-CLO4	Understand how to analyze additives and contaminants in food ingredients
	Sub-CLO5	Understand the principles of food safety
Brief Description of the Course	Study of the basic principles of foodstuff analysis methods and data quality, in terms of chemical structure, analysis and application including validation, analysis of macro and micro-nutrients in various foodstuffs using classical and modern methods and determining appropriate analytical methods based on standard methods, food safety principles or journals which supports it is accompanied by supporting laboratory activities so that students are able to master related concepts, have skills in using tools, are able to cooperate and be responsible and can communicate their knowledge and skills scientifically and their application in the business field.	
Study Materials: Learning Materials	Introduction: food analysis methods, and data analysis techniques Micronutrient analysis in food: analysis of water content, ash content, mineral content and vitamin content Macronutrient analysis in food: analysis of protein content, fat content and carbohydrate content Principles of Food Safety: HACCP, GMP, ISO 22000 version 2017, FSCC version 4	
References	**Main :**	
	1. Slamet Sudarmaji, dkk, 1996. *Analisis Bahan Makanan dan Pertanian*, Yogyakarta: Liberty	

	2. James, C.S.,1995 *Analitycal Chemistry of Foods,* Blackie Academic and Professional
	Additional :
	Articles from scientific journals
Lecturer	Prof. Dr. Titik Taufikurohmah, M,Si. dan Rusmini S.Pd., M.Si
Prerequisite courses	Organic Chemistry, Inorganic Chemistry, Chemical Analytical Instruments

Meeting	The final ability of each activity	Assessment		Learning Forms, Learning Methods, Student Assignment		Reference	Rating Weight (%)
		Indicator	Criteria & Form	Offline	Online		
(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)
1	Understand the basic principles in proper analytical methods based on standard methods (AOAC) on food ingredients and sampling	1. Describe general food analysis 2. Explain the scope of the food analysis 3. Explain the requirements for selecting food analysis methods 4. Determine the quality of the data obtained 5. Determine the method of sampling by type	Essay writing test	Lectures, questions and answers		1. a study contract 2. preliminary food analysis 3. food analysis methods 4. food analysis techniques	5
2	Understand the principles of food safety	Describes the principles of food safety based on HACCP, GMP, ISO 22000 version 2017, FSCC version 4	Essay writing test	Lectures and interactive discussions		Principles of food safety based on HACCP, GMP, ISO 22000	5

8

							version 2017, FSCC version 4	
3	Understanding how to analyze water content and micronutrients (vitamins, ash and minerals) in foodstuffs	1. Determine the moisture content of food. 2. Determine the ash content of food 3. Determine the mineral content of food 4. Determine the levels of vitamins from food	Essay writing test	Lectures, discussions, questions and answers		1. Water content 2. Ash content 3. Mineral levels 4. Vitamin levels	**40**
4	Understanding how to analyze water content and micronutrients (vitamins, ash and minerals) in foodstuffs	1. Determine the moisture content of food. 2. Determine the ash content of food 3. Determine the mineral content of food	▪ Observation sheet of practicum performance ▪ Pretest and posttest practicum	Practicum analysis of water, ash, and mineral content		1. Water content 2. Ash content 3. Mineral levels	
5	Understanding how to analyze water content and micronutrients (vitamins, ash and minerals) in foodstuffs	Determine the levels of vitamins from food	• Observation sheet of practicum performance • Pretest and posttest practicum	practicum analysis of vitamin		Vitamin levels	
6	Understanding how to analyze water content and micronutrients (vitamins, ash and minerals) in foodstuffs	Communicating the results of determining the water content, ash content, mineral	• Presentation assessment sheets • Assessment sheet	Presentation of practicum results		1. Water content 2. Ash content 3. Mineral levels	

No.							
		content, vitamin content of foodstuffs	practicum report				
7	Understanding how to analyze water content and micronutrients (vitamins, ash and minerals) in foodstuffs	Communicating the results of determining the water content, ash content, mineral content, vitamin content of foodstuffs	• Presentation assessment sheets • Assessment sheet practicum report	Presentation of practicum results		Vitamin levels	
8	**Evaluasi Tengah Semester / Ujian Tengan Semester**						
9	Understand how to analyze macronutrients (protein, fat and carbohydrates) contained in food ingredients	1. Determining protein content in food by classical and modern methods 2. Determine the levels of carbohydrates in both complex and simple foodstuffs 3. Understand the selection of the right method based on the standard AOAC method or the latest journal.	Essay writing test	Lectures, discussions, questions and answers		protein, and carbohydrates levels	
10	Understand how to analyze macronutrients (protein, fat and	1. Determine the levels of fat contained in foodstuffs and the	Essay writing test	Lectures, discussions, questions and answers		Fat levels	

10

	carbohydrates) contained in food ingredients	quality of food fats including iodine bil, lathering bill, ester bill and FFA as well as the MR estimate. 2. Understand the selection of the right method based on the standard AOAC method or the latest journal					
11	Understand how to analyze macronutrients (protein, fat and carbohydrates) contained in food ingredients	Applying analysis of protein, fat and carbohydrate content with selected methods	▪ Observation sheet of practicum performanc ▪ Pretest and posttest practicum	Practicum determination of protein, carbohydrate content		protein, and carbohydrates	
12	Understand how to analyze macronutrients (protein, fat and carbohydrates) contained in food ingredients	Applying analysis of protein, fat and carbohydrate content with selected methods	▪ Observation sheet of practicum performanc ▪ Pretest and posttest practicum	Practicum determination of fat		fat	
13	Understand how to analyze macronutrients (protein, fat and carbohydrates) contained in food ingredients	Communicating the results of the analysis of protein, fat and carbohydrate	• Presentation assessment sheets • Assessment sheet	Presentation of practicum results of protein, fat and carbohydrate		protein, fat and carbohydrates	30

		levels using the selected method	practicum report				
14	Understand how to analyze additives and contaminants in food ingredients	1. Determining the types of additives in food. 2. Determining the content of additives in food. 3. Determination of contamination levels in foodstuffs.	Essay writing test	Lectures, discussions, questions and answers		Additives and contaminants in food	20
15	Understand how to analyze additives and contaminants in food ingredients	1. Determining the types of additives in food. 2. Determining the content of additives in food. 3. Determination of contamination levels in foodstuffs.	• Observation sheet of practicum performance • Pretest and posttest practicum • Assessment sheet practicum report	Practicum for determining the content of additives and contaminants		Additives and contaminants in food	
16	Evaluasi Akhir Semester / Ujian Akhir Semester						100

A.4. MAPPING OF LEARNING OUTCOMES – COURSE OUTCOMES

A.4.1. The Expected Program Learning Outcomes (PLO) of Undergraduate Program of Education Chemistry (UPCE)

NO	ASPECTS	PLO	CODE
1	KNOWLEDGE	1. Capable to demonstrate knowledge related to theoretical concepts about structure, dynamics, and energy, as well as the basic principles of separation, analysis, synthesis and characterization of chemicals	KNO-1
		2. Capable to demonstrate the pedagogical knowledge of chemistry in designing, implementing, and evaluating chemistry learning	KNO-2
2	SKILL	3. Mastering the principles of ocupational health and safety, managing laboratories, using the equipment and operating chemical instruments	SKI-1
		4. Capable to design, implement, evaluate, learn and develop chemistry learning media by utilizing Information and Communication Technology	SKI-2
3	COMPETENCIES	5. Applying logical, critical, systematic and innovative thinking in the context of development or implementation of science, technology, and art that regards and applies humanities in accordance with chemistry education in solving problems	COM-1
		6. Mastering the basics of the scientific method, designing and conducting research, writing scientific reports and communicating them both verbally and in writing by utilizing information and communication technology in the field of education	COM-2
4	ATTITUDE AND SOCIAL	7. Capable to make decisions based on data/information in order to complete their responsibility assignment and evaluate the performance that has been done both individually and in groups, have an entrepreneurial spirit with environmental insight	SOC-1
		8. Capable to adapt to various developments in chemistry, develop and learn continuously throughout life to continue education, both formal and informal	SOC-2

A4.2. The Education Program Objectives (PEOs) of Food Analysis.

PEO-01 Comprehending the concept and chemistry learning, laboratory management, scientific method, and ICT as well as its implementation to solve the problem in their profession.

PEO-02 Having the higher order thinking skills to communicate ideas verbally and in writing, be able to take the right initiatives and to be a good decision maker and having the ability to lead in group working group at relevant fields

A4.3. Mapping of Program Learning Outcomes (PLO) – Education Program Objectives (PEOs)

	PLO 1 (KNO-1)	PLO 5 (COM-1)	PLO 6 (COM-2)
PEO 1	√	√	√
PEO 2	√	√	√

B.   COURSE ASSESSMENT

B.1. Assessment Rubric

Cognitive Criteria
1.   The ability to give answers correctly
2.   The ability to provide argumentation according to theory
3.   The ability to provide systematic explanations
4.   The ability to solve problems comprehensively

B.2. Assessment System

Final Assessment Course with practicum
Practicum   : 20%
Group/Individuals Assignment   : 20%
Midterm examination   : 30%
Final examination   : 30%

Distribution of the weight of the ability of the test item

	PLO 1 (KNO-1)	PLO 5 (COM-1)	PLO 6 (COM-2)	Total
Practicum	20%	30%	50%	100%
Group/Individuals Assignment	20%	30%	50%	100%
Midterm examination	30%	40%	20%	100%
Final examination	30%	40%	20%	100%

Success Criteria of Program Learning Outcomes (PLO)

Excellence	$x \geq 80$
Good	$70 \leq x < 80$
Satisfy	$55 \leq x < 70$
False	$X < 55$

Final index for undergraduate program defined as follow:

Final Index	Range
A	4 ($85 \leq x \leq 100$)
A⁻	3,75 ($80 \leq x < 85$)
B+	3,5 ($75 \leq x < 80$)
B	3 ($70 \leq x < 75$)
B-	2,75 ($65 \leq x < 75$)
C+	2,5 ($60 \leq x < 65$)
C	2 ($55 \leq x < 60$)
D	1 ($40 \leq x < 55$)
E	0 ($0 \leq x < 40$)

C. COURSE DEVELOPMENT

C.1. Academic Year 2019/2020 odd semester

Parameter	$\sum$ of person	Percentage
Number or students taking this subject	24	100%
Number of students who pass at first attempt ($>C^+$)	24	100%
Number of students who must take remedial	0	0%
Number of failed students after remedial (D & E)	0	0%

C.2. Problems Analysis

In 2019/2020 academic year in the food analysis course, there were 100 % students had passed the examination at the first attempt. The number of students who must took the remedial examination is 0%. Even though, it was thought that the learning strategy/methods need to be improved to achieve the higher results in the future. Average of final score in 2019/2020 is lower than before, due to students have different characteristic, namely they difficult to cooperative with their group and not serious when do the task, therefore the have lack of average score.

C.3. Solutive Strategy

New teaching and learning methods should be developed for the next academic years, consisting of:
1. Redesigning the course material (PPT slides, course contents, etc.) to become more interesting and interactive to stimulate student's interest to this course.
2. Giving "lecture by online" to stimulate our students to learn about the next lecture topics.
3. Enhance the cooperative skills of students with exchange the methods and models of learning

D. APPENDICES
D.1. DOCUMENT OF COURSE ACTIVITY
D.1.1. Lecture's journal and student's attendance form siakadu.uneca.ac.id

UNIVERSITAS NEGERI SURABAYA

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Telepon :+6231-99424932
Faksimile :+6231-99424932
e-mail :bakpk@unesa.ac.id

UNESA
Universitas Negeri Surabaya

PRESENSI KULIAH
Periode 2019/2020 Gasal

Mata Kuliah : Analisis Pangan
Kelas : 2016P
Prodi : S1 Pendidikan Kimia

Dosen : Rusmini, S.Pd., M.Si.
Prof. Dr. Titik Taufikurohmah, S.Si., M.Si.

No	NIM	Nama Mahasiswa	1 21 Aug 19	2 28 Aug 19	3 04 Sep 19	4 11 Sep 19	5 18 Sep 19	6 25 Sep 19	7 02 Oct 19	8 09 Oct 19	9 16 Oct 19	10 23 Oct 19	11 30 Oct 19	12 08 Nov 19	13 15 Nov 19	14 22 Nov 19	15 29 Nov 19	%
1.	16030194001	FIKRI SUGIYANTORO	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
2.	16030194002	LUCKY ANZANI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
3.	16030194003	NADHIFATUS SHIFA' AL-MIRA	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
4.	16030194007	ZAINAB	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
5.	16030194009	ILO ISALOKA	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
6.	16030194023	MUHAMMAD BADRUL UYUN	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
7.	16030194031	ELLEN SUTOPO PUTRI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
8.	16030194033	LUKLUATUL LUTFIANA	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
9.	16030194036	NURIL LAILIYAH ISWAHYUNI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
10.	16030194037	ERLIA YUDHA	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
11.	16030194042	IZAUL HAQ	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
12.	16030194048	BALQIS LUTHFIYYATUS ZAHRO	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
13.	16030194049	WISMA IMELDA SETYOWATI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
14.	16030194056	KHOLIFIA NABILA HASANAH	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
15.	16030194057	REZA ALFIYANTI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
16.	16030194058	FADILAH ROHMAH YULIANING	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
17.	16030194059	NABILA YUNIAR MANDASARI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
18.	16030194061	ROUDLOTUL JANNAH	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
19.	16030194064	IZZATUN NISA'	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
20.	16030194067	FITRIA NURUL HIDAYATI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
21.	16030194069	NURLAILY YULIA SAFITRI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
22.	16030194070	REZI ULYA FAUZIAH	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
23.	16030194076	VIRGINIA AHSANI SALSABILA	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%
24.	16030194080	MOCH. NURWAHYUDI	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	100%

Tanda Tangan Dosen / Asisten

D.1.2. Sample of statement of examination official report

(Scan Berita Acara Ujian Analisis Pangan)

KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN
UNIVERSITAS NEGERI SURABAYA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
JURUSAN KIMIA

KampusKetintang , 60231
Telepon: +6231- 8298761
Faksimile : +6231- 8298761
e-mail   kimia@unesa.ac.id

Official Report of The Final Exam

Today, **Jumat, 6 Desember 2019** The Final Exam in the Odd Semester 2019/2020 via offline on class C5.01.01 has been done. The examination start at 07.00 and ends at 8.40 for 100 minutes.

Undergraduate Program	: Chemistry Education
Course	: Food Analysis
Class	: PKA 2016
Lectures	: Team

Number of participants	:24 student(s)
Number of Attendees	:24 student(s)
Number of Absence	:0 student(s), there are

1. ....   4. ....   7. ....
2. ....   5. ....   8. ....
3. ....   6. ....   9. ....

The case during the exam

....
....
....

Supervisor Name :	1.	Sign :	1.
	2.		2.
	3.		3.
	4.		4. .

Thus official report of The Final Exam.

Set in : Surabaya
Date :
The exam committee,

Dr. Muchlis, S.Pd., M.Pd.
NIP 197209152003121001

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D.2. SAMPLE OF STUDENT WORK

D.2.1. Sample of Test Paper

KEMENTERIAN RISET, TEKNOLOGI DAN PENDIDIKAN TINGGI
UNIVERSITAS NEGERI SURABAYA
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
JURUSAN KIMIA
UNESA

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F: +6231–8298761

Management System
ISO 9001:2015
TÜVRheinland
CERTIFIED
www.tuv.com
ID 9108650021

SOAL UJIAN AKHIR SEMESTER GASAL 2019/2020

Mata Ujian : Analisis Pangan
Jurusan/Fakultas : Kimia / MIPA
Program/Angkatan : S1 Pendidikan Kimia /2016
Hari/Tanggal : Jumat, 6 Desember 2019
Jam ke : 1
Waktu : 07.00-08.40
Dosen : Rusmini S.Pd., M.Si.
Sifat Ujian : *Closed Books*

Do this question correctly !

1. Regarding the use of additives, some are said to be deliberate additives and accidental additives. Describe the differences between the 2 terms and give examples of each! (score 10)
2. Nitrite can bind to amino and amide contained in meat protein to form healthy nitrosamine derivatives. Give your opinion on whether the statement is true or false. If it is wrong then correct the statement! (score 5)
3. On a food product in the form of solids, if it feels wet and is not dry, brand x is written as 20% fat content of dry weight. Meanwhile, other brands say that the fat content is 20% of the wet weight. Analyze the difference between the two things which is the greater the fat content! (score 10)
   Note: may be accompanied by calculations to provide an explanation that is easily understood by the general public
4. In the manufacture of ote-ote, the main ingredients are wheat flour which is added with carrots which contain vitamin A and sprouts containing vitamin E. Then the flour and vegetable dough is fried in hot oil. What do you think about adding carrots and sprouts as an effort to add nutrition (especially vitamins) to these ote! (Score 5)
5. Mineral fortification is the addition of certain minerals to food products. Iron (Fe) is often used as fortification. Fe is a prooxidant, which can oxidize unsaturated fatty acids, vitamins A, C, and E which results in the formation of free radicals. Fe fortification in wheat flour will trigger the oxidation process and reduce the quality of the bread produced.
   Make an experimental design related to the phenomenon of iron mineral fortification in food. Please you want to see what part is based on this phenomenon. (Score 20)

19

The experimental design includes:
  a. Title
  b. Formulation of the problem
  c. Hypothesis
  d. Research design
      1) Population and sample
      2) Control variable
      3) Variable manipulation
      4) Variable response
  e. Work steps
  f. Observation table design only
  g. data analysis techniques
  Note: may be qualitative or quantitative data

D.2.2. Sample of Student's Work

1. a) Zat aditif sengaja
   ↳ Merupakan zat aditif yang diberikan dengan sengaja dan
     dengan maksud & tujuan tertentu yaitu contohnyauntuk
     meningkatkan nilai gizi, cita rasa, mengendalikan keasaman
     dan kebasaan, memantapkan bentuk dan rupa, dan lain-lain.
     Contoh: bulking agent, Flour treatment, MSG, garam mineral

   b) Zat aditif tidak sengaja
   ↳ Merupakan zat aditif yang terdapat dalam makanan dalam
     jumlah yang sangat kecil sebagai akibat dari proses
     pengolahan.
     Contoh: • polychlorinated biphenyl (PCB) • toksin jamur
             • antibiodika

2. Pernyataan tersebut salah.

Nitrit di dalam produk daging olahan digunakan sebagai pengawet untuk mempertahankan warna daging justru menimbulkan efek yang membahayakan bagi kesehatan. Pada reaksinya nitrit dapat berikatan dengan amino atau amida kemudian membentuk turunan nitrosamin yg bersifat karsinogenik.

<u>Reaksi</u> : $R_2NH + HNO_2 \longrightarrow R_2N - NO + H_2O$
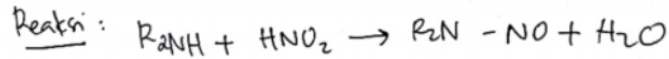
3. Merk X : · dipegang terasa basah   · kadar lemak 20% dari
            · tidak kering   berat kering

Merk Y : kadar lemak 20% dari berat basahnya

Jawaban :
   Lebih berat kadar lemak 20% dari berat kering, artinya pengukuran total lemak kasar (sudah tdk mengandung air)

$$Kadar\ lemak = \frac{berat\ lemak}{berat\ sampel} \times 100\%$$

①

Kadar lemak pada berat basah lebih rendah karena dlm bentuk basah masih memiliki kandungan air yg tinggi. Menurut Almatsier (2009), menyatakan bahwa kandungan lemak berbanding terbalik dengan kadar air yang terdapat pada suatu bahan. Kadar air yg tinggi menyebabkan kadar lemak menurun secara proporsional.

4. Menurut saya, penambahan dg wortel yg mengandung vitamin A dan kecambah yang mengandung vitamin E sangat bagus dalam produk makanan namun jika pada proses pembuatannya ada proses penggorengan dalam minyak panas dlm jumlah banyak maka produk pangan tersebut akan kehilangan banyak kandungan vitamin E dan A, karena kedua vitamin tersebut bisa rusak pada suhu tinggi.

a) Judul : Pemanfaatan Hati Ayam sebagai Fortifikan Zat Besi dalam Bubur Bayi Instan dari Ubi Jalar Ungu

b) Rumusan masalah :
1. Bagaimana metode yang digunakan dalam penentuan kadar Fe pada penambahan Fortifikan yang bersumber pada hati ayam ?
2. Bagaimana Perbandingan kadar Fe dengan konsentrasi yang berbeda ?

c) Hipotesis

Mineral yang berasal dari hati ayam lebih mudah diabsorbsi oleh tubuh. Semakin tinggi konsentrasi hati ayam yang ditambahkan maka semakin tinggi kadar Fe.

d) Rancangan Penelitian

Penelitian ini merupakan penelitian eksperimental, menggunakan Rancangan Acak Lengkap (RAL) yang terdiri dari penambahan hati ayam terhadap pangan bubur bayi. Faktor penambahan hati ayam terdiri atas 5 formulasi kadar zat besi yang dikandungnya, yaitu F0 (4 mg /100 gram), F1 (6 mg /100 gram), F2 (8 mg /100 gram), F3 (10 mg /100 gram), F4 (12 mg /100 gram) dan kadar zat besi total dalam hati ayam.

②

1) Populasi dan Sampel
• Populasi
Populasi hati ayam dan ubi jalar ungu diambil di Kota Surabaya, Jawa Timur

• Sampel
Sampel hati ayam dan ubi jalar ungu diperoleh dari Kelurahan Margorejo Kecamatan Wonocolo Kota Surabaya, Jawa Timur.

2) Variabel Kontrol
Bubur terbuat dari Ubi jalar ungu, berat bubur

3) Variabel Manipulasi
Hati ayam yang ditambahkan masing-masing variabel mengandung kadar zat besi sebesar 4 mg /100 gram, 6 mg /100 gram, 8 mg /100 gram, 10 mg/ 100 gram, 12 mg /100 gram dan kadar zat besi total dalam hati ayam.

4) Langkah Kerja
   a) Pembuatan tepung hati ayam

┌─────────────────┐
│   Hati ayam   │
└─────────────────┘
   1. Dicuci
   2. Diiris tipis menggunakan
      slicer
   3. Dikeringkan dlm oven
      dg suhu kurang lebih
      60°C selama 12 jam.
   4. Pembuatan tepung meng-
      gunakan disk mill.
   5. Tepung diayak meng-
      gunakan siering

┌─────────────────┐
│ Tepung berukuran │
│   80 mesh   │
└─────────────────┘
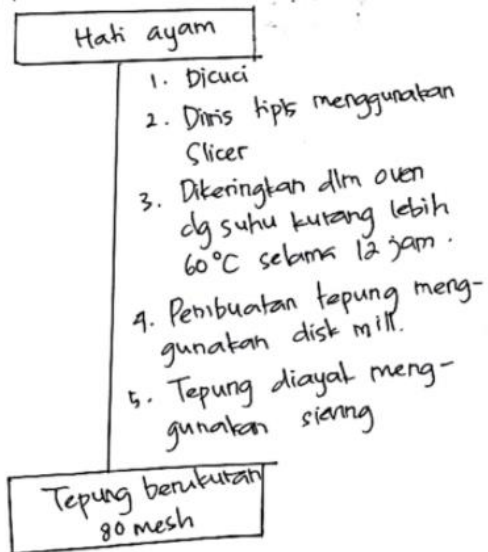
b) Pembuatan Tepung Ubi Jalar Ungu
   1. Ubi jalar ungu disortir, dikupas, dicuci dengan
      air hingga bersih.
   2. Diiris tipis dengan slicer
   3. Ubi jalar direndam dg larutan $Na_2S_2O_5$ 0,3% 30 menit
   4. Ubi jalar dikeringkan menggunakan oven dg suhu 100°C
      20 jam
   5. Diperkecil ukurannya menggunakan disk mill
   6. Diayak menggunakan siering

Tepung berukuran 80 mesh

c) Fortifikasi Zat Besi

100 gram tepung ubi ungu

1. Dicampur dg tepung hati ayam sesuai variabel
2. Ditambah NaFeEDTA dg perbandingan terhadap fortifikan
   1:1
3. Campuran dilarutkan dalam air bebas mineral
   (1:1)
4. Campuran dimasukkan ke dlm mixer hingga menjadi
   homogen

Slury

d) Pembuatan Bubur Bayi instan

Slury

1. Dikeringkan dg suhu 100°C ±3 jam
2. Hasil pengeringan berupa flake
3. Diayak 60 mesh
4. Ditambah air panas (60° - 70) C

Bubur Instan

f) Rancangan Tabel pengamatan

	Tanpa Fortikan	4mg/100gr	6 mg/100 gr	8 mg/100 gr	10mg/100gr	12mg/100gr
Kadar Fe						

g) Teknik Analisis Data

Uji Kuantitatif dengan menggunakan AAS (Spektrofotometer Serapan Atom)

D.3. RECAPITULATION OF ASSESSMENT

D.3.1. Validate Test Item

The end-of-semester evaluation questions consist of eight items in the form of essay questions analyzed content through experts in the appropriate field of Chemistry Education analyzed. Essay questions are validated with expert judgment in the course team members. The analysis was conducted by taking into account several aspects, namely the suitability of the questions with the course outcome, language, content and construct.

D.3.2 Evaluation Results of Food analysis

1	PROGRAM STUDI S1 Pendidikan Kimia									Original data :		
2	DAFTAR NILAI MAHASISWA											
3	Mata Kuliah : Analisis Pangan											
4	Kelas : 2016P											
5	Tahun Ajaran : 2019/2020 Gasal											
6												
7	**Keterangan :**											
8	1. Komponen nilai yang diisi hanya : Part,Tugas,UTS dan UAS											
9	2. Nilai UAS mahasiswa dengan kehadiran dibawah 73.3% (kolom dg warna merah) tidak akan disimpan											
10	3. Jangan merubah apapun di dokumen ini kecuali pada point nomer satu di atas.											
11	4. PPTI / BAAK tidak menerima file nilai untuk diupload. Proses upload nilai dilakukan oleh dosen pengampu yang bersangkutan.											
12												

	No	NIM	Nama Mahasiswa	Angkatan	Kehadiran	Part	Tugas	UTS	UAS	NA	Huruf	Pakai
14	1	16030194001	FIKRI SUGIYANTORO	2016	100%	80	88,5	90	87	86,7	A	1
15	2	16030194002	LUCKY ANZANI	2016	100%	81	88,5	90	87	86,9	A	1
16	3	16030194003	NADHIFATUS SHIFA' AL-MIR	2016	100%	80	86,5	90	87	86,1	A	1
17	4	16030194007	ZAINAB	2016	100%	81	89	90	87	87	A	1
18	5	16030194009	ILO ISALOKA	2016	100%	82	88,5	90	87	87,1	A	1
19	6	16030194023	MUHAMMAD BADRUL UYU	2016	100%	80	89	90	87	86,8	A	1
20	7	16030194031	ELLEN SUTOPO PUTRI	2016	100%	81	88,5	90	87	86,9	A	1
21	8	16030194033	LUKJIJATUL LUTFIANA	2016	100%	81	88,5	90	87	86,9	A	1
22	9	16030194036	NURIL LAILIYAH ISWAHYUNI	2016	100%	84	88	90	87	87,3	A	1
23	10	16030194037	ERLIA YUDHA	2016	100%	81	88	90	87	86,7	A	1
24	11	16030194042	IZAUL HAQ	2016	100%	80	88,5	90	87	86,7	A	1
25	12	16030194048	BALQIS LUTHFIYYATUS ZAH	2016	100%	83	88	90	87	87,1	A	1
26	13	16030194049	WISMA IMELDA SETYOWAT	2016	100%	81	88	90	87	86,7	A	1
27	14	16030194056	KHOLIFIA NABILA HASANAH	2016	100%	80	88,5	90	87	86,7	A	1
28	15	16030194057	REZA ALFIYANTI	2016	100%	83	89	90	87	87,4	A	1
29	16	16030194058	FADILAH ROHMAH YULIANIN	2016	100%	83	89	90	87	87,4	A	1
30	17	16030194059	NABILA YUNIAR MANDASA	2016	100%	81	89	90	87	87	A	1
31	18	16030194061	ROUDLOTUL JANNAH	2016	100%	82	88,5	90	87	87,1	A	1
32	19	16030194064	IZZATUN NISA'	2016	100%	82	88,5	90	87	87,1	A	1
33	20	16030194067	FITRIA NURUL HIDAYATI	2016	100%	81	89	90	87	87	A	1
34	21	16030194069	NURLAILY YULIA SAFITRI	2016	100%	82	89	90	87	87,2	A	1
35	22	16030194070	REZI ULYA FAUZIAH	2016	100%	82	89	90	87	87,2	A	1
36	23	16030194076	VIRGINIA AHSANI SALSABIL	2016	100%	75	89	85	0	58,7	C	1
37	24	16030194080	MOCH. NURWAHYUDI	2016	100%	82	89	90	87	87,2	A	1

D.3.3 Percentage of PLO achievements of food analysis at Academic Year 2019/2020

PLO ASSESSMENT

Lecture   : Food Analysis
Code   : 8420402001
Department   : Chemistry Education Department
Total of Student : 24

	PLO-1	PLO-2	PLO-3	PLO-4	PLO-5	PLO-6	PLO-7	PLO-8
EXELENCE	96%				96%	96%		
GOOD	0%				0%	0%		
SATISFY	0%				4%	4%		
FALSE	4%				0%	0%		
	100%	0%	0%	0%	100%	100%	0%	0%