IPB UNIVERSITY
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
DEPARTEMEN KIMIA

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SEMESTER COURSE PLAN

KIM 1222
ORGANIC CHEMISTRY II
3(3-0)

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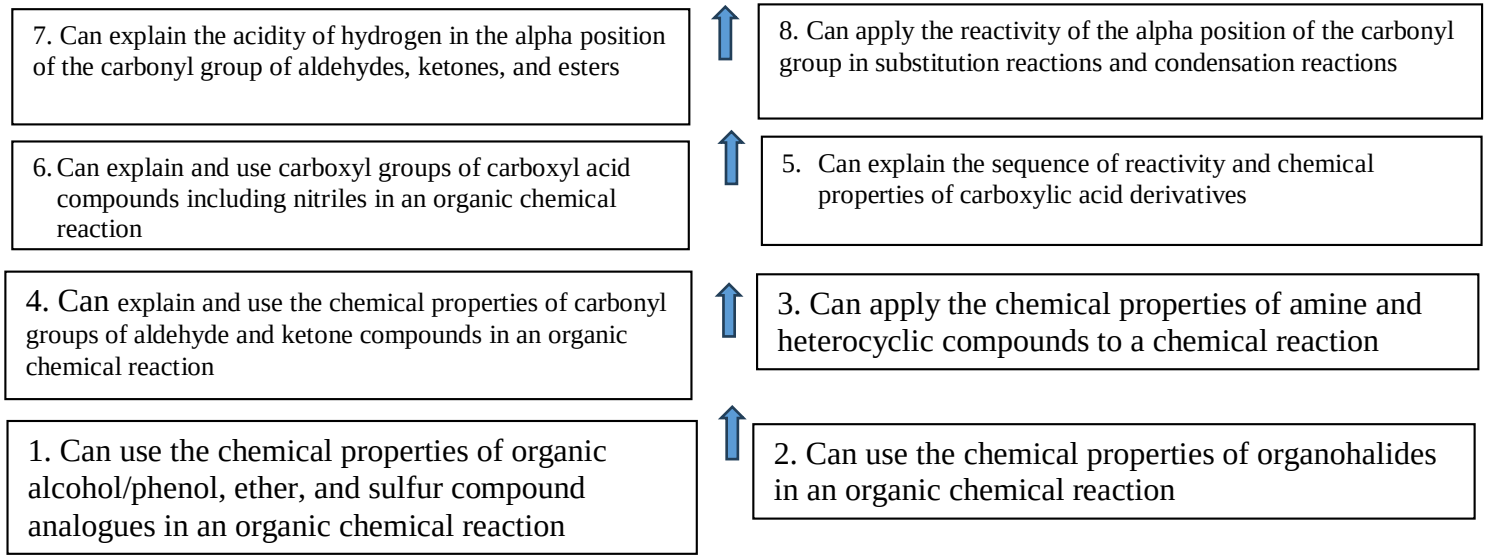
INSTRUCTIONAL ANALYSIS

Learning Outcomes

1. Can describe structures based on functional groups and write nomenclature IUPAC2
2. Can identify and compare the physical properties of organic compounds based on structure and functional group
3. Mastering the basic theory of reactions and reaction mechanisms of organic compounds based on chemical properties and their reactivity
4. Skilled in analyzing a chemical synthesis reaction based on the basic principles of structure and reactivity of organic compounds



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Course Name	:	Organic Chemistry II
Code/Credit	:	KIM 1222 / 3(3-0)
Semester	:	Even
Description	:	This Organic Chemistry 2 course is a compulsory course in the Department of Chemistry. This course is given to equip students with knowledge about the physical and chemical properties of organohalide compounds; alcohols and phenols, ethers and epoxides, as well as their analogous compounds sulfur; amines and heterocyclic compounds; carbonyl compounds: aldehydes and ketones, carboxylic acids and their derivatives including nitriles; with emphasis on structure, stereochemistry, synthesis, reactions and reaction mechanisms of nucleophilic substitution and addition, nucleophilic acyl substitution, α-carbonyl substitution and condensation reactions. The scope of the discussion and learning process is to use active learning through small group discussions, cooperative learning, and presentations. The language of instruction used in this lecture is Indonesian.
Prerequisites course	:	KIM 221 Organic Chemistry I
Learning Outcomes	:	1. Able to describe structures based on functional groups and write nomenclature IUPAC 2. Able to identify and compare the physical properties of organic compounds based on structure and functional groups 3. Mastering the basic theory of reactions and reaction mechanisms of organic compounds based on chemical properties and their reactivity 4. Skillfully analyze a chemical synthesis reaction based on the basic principles of structure and reactivity of organic compounds.
Scope and Curriculum map of Royal Society of Chemistry Curriculum (RSC)[2)]	:	Functional groups in organic compounds, Functionality can be used to predict reactions, Types of organic reactions, reactions, and structure of carbonyl compounds; (aldehydes, ketones, carboxylic acids, esters, acetals, ketals, imines, enamines, enols, enolates), reactions and structure of alcohols, thiols, ethers, sulfonate esters, amines, alkyl halides; organometallics, Organic synthesis
Division/Field	:	Organic Chemistry
Lecturers	:	1. Prof. Dr. Dra. Purwantiningsih Sugita, MS 2. Dr. Novriyandi Hanif 3. Dr. Muhamad Farid 4. Luthfan Irfana, S.Si., M.Si

[1)]Tutorial/practicum activities are expressed in credits, not in the number of hours

[2)]see excel file Chemistry Curriculum Map from RSC

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Table 1. BLENDED LESSON PLAN (12× Offline and 2 × Online)

WEEK OF	LEARNING OUTCOMES	TOPIC	METHOD	DURATION	STUDY EXPERIENCE	ASSESSMENT			REFERENCES
						CRITERION	INDICATOR	WEIGHT (%)	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1 and 2	Students can explain the physical and chemical properties of organic compounds ORGANOHALIDEs in an organic chemical reaction	Organohalides: physical and chemical properties and their reactions and mechanisms: Nucleophilic Substitution and Elimination Reactions	**Face-to-face lectures, covering**: a. Lecture b. Class Interactive Discussion c. Review of Discussion Results d. Quizizz Task design Tables 2 and 3	6 × 50 min	1. Gain insight and explanation of organic compounds ORGANOHALIDES 2. Interact with students and: • Lecturers • Other students • Teaching materials 3. Gain conformity/ understanding, argue, and respect opinions for a joint decision between lecturers and students	**Hard Skills:** Completeness and correctness of explanations of nomenclature, physicochemical properties, reactions and mechanisms (nucleophilic substitution and elimination), and simple synthesis correctly **Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in making questions and statements during interactive discussions	Scoring rubrics Table 4, 5 and 6		**1** **2, 3, 4**
3	Students can explain the physical-chemical properties of organic compounds ALCOHOL/PHENOL and their analogs of thiol compounds related	Alcohols and Phenol dan Thiol	***Asynchronous: Daring via*** Zoom/WA/LMS 1. Lecture/View Video/YouTube	3 × 50 min	1. Gain insight and explanation of ALCOHOL/PHENOL organic compounds and THEIR	***Hard skill:*** Completeness and correctness of explanations of the nomenclature of physicochemical properties, reactions,	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**

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	to an organic chemical reaction		2. Class Interactive Discussion 3. Review of Discussion Results 4. Quiz Task design Tables 2 and 3		ANALOGUES THIOL compounds 2. Interact with students and: • Lecturers • Other students • Teaching materials 3. Gain conformity/understanding, argue, and respect opinions for a joint decision between lecturers and students	and mechanisms (nucleophilic substitution and elimination) and simple synthesis correctly **Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in making questions and statements during interactive discussions			
4	Students can explain the physical-chemical properties of organic compounds CYCLIC ETHER/ETHER and its analogs of thioether/sulfide compounds related to an organic chemical reaction	Ethers and Epoxides, Thioethers, Sulfides	**Face-to-face lectures, covering**: 1. Lecture 2. Class Interactive Discussion 3. Review of Discussion Results 4. Quiz Task design Tables 2 and 3	3 × 50 min	1. Gain insight and explanation of CYCLIC ETHER/ETHER organic compounds and THEIR ANALOGUES THIOETHER/SULFIDE compounds 2. Interact with students and: • Lecturers • Other students • Teaching materials 3. Gain conformity/understanding, argue, and respect opinions for a	***Hard skill:*** Completeness and correctness of explanations of nomenclature, physicochemical properties, reactions and mechanisms and simple synthesis correctly **Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in answering	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**

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					joint decision between lecturers and students	questions and statements during interactive discussions			
EXAM I								**25**	
5 and 6	Able to explain the physical-chemical properties of organic compounds AMINE in an organic chemical reaction	Amines	**Face-to-face lectures, covering**: 1. Lecture 2. Class Interactive Discussion 3. Review of Discussion Results ***4.*** Quiz Task design Tables 2 and 3	4 × 50 min	1. Gain insight and explanation of AMINE compounds 2. Interact with students and: • Lecturers • Other students • Teaching materials 3. Gain conformity/understanding, argue, and respect opinions for a joint decision between lecturers and students	***Hard skill:*** Completeness and correctness of explanations of nomenclature, physicochemical properties, reactions and mechanisms, and simple synthesis correctly **Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in making questions and statements during interactive discussions	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**
6 and 7	Can apply the chemical properties of HETEROCYCLIC AMINE compounds to an organic chemical reaction	Heterocyclic amines	**Face-to-face lectures, covering**: 1. Lecture 2. Class Interactive Discussion 3. Review of Discussion Results	5 × 50 min	1. Gain insight and explanation of heterocyclic AMINE compounds 2. Interact with students and: • Lecturers • Other students	***Hard skill:*** Completeness and correctness of explanations of nomenclature, physicochemical properties, reactions and mechanisms, and simple synthesis correctly	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**

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			4. Quiz Task design Tables 2 and 3		• Teaching materials 3. Gain conformity/ understanding, argue, and respect opinions for a joint decision between lecturers and students	**Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in answering questions and statements during interactive discussions		
EXAM II (MIDTERM)								**20**	
8 and 9	Can apply the chemical properties of ALDEHYDES AND KETONES compounds to an organic chemical reaction	Aldehydes and Ketones	**Face-to-face lectures, covering**: 1. Lecture 2. Class Interactive Discussion 3. Review of Discussion Results ***4.*** Quiz Task design Tables 2 and 3	6 × 50 min	1. Gain insight and explanation of organic compounds ALDEHYDES AND KETONES 2. Interact with students and: • Lecturers • Other students • Teaching materials 3. Gain conformity/understanding, argue, and respect opinions for a joint decision between lecturers and students	***Hard skill:*** Completeness and correctness of explanations of nomenclature, physicochemical properties, reactions, and mechanisms of nucleophilic addition, redox, and simple synthesis correctly **Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in making questions and statements during interactive discussions	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**

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10	Can explain the influence of structure on the acidity of CARBOXYLIC ACIDS and NITRILES in an organic chemical reaction	Nitrile from carboxylic acids	**Face-to-face lectures, covering**: 1. Lecture 2. Class Interactive Discussion 3. Review of Discussion Results 4. Quiz Task design Tables 2 and 3	3 × 50 min	1. Gain insight and explanation of organic compounds CARBOXYLIC ACIDS and NITRILES 2. Interact with students and: • Lecturers • Other students • Teaching materials 3. Gain conformity/ understanding, argue, and respect opinions for a joint decision between lecturers and students	***Hard skill:*** Completeness and correctness of explanations of nomenclature, physicochemical properties, reactions, and mechanisms of substitution of nucleophilic acyl, redox, and simple synthesis correctly **Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in making questions and statements during interactive discussions	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**
11	Can explain the influence of structure on the reactivity of CARBOXYLIC ACID DERIVATIVES in an organic chemical reaction	Carboxylic acid derivatives	***Asynchronous: Daring via*** Zoom/WA/LMS **Activity** 1. Lecture /View Video/ YouTube 2. Class Interactive Discussion	3 × 50 min	1. Gain insight and explanation of organic compounds CARBOXYLIC ACID DERIVATIVES 2. Interact with students and: • Lecturers • Other students • Teaching materials	***Hard skill:*** Completeness and correctness of explanations of nomenclature, physicochemical properties, reactions and mechanisms of substitution of nucleophilic acyl, redox, and simple synthesis correctly	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**

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			3. Review of Discussion Results ***4.*** Quiz Task design Tables 2 and 3		3. Gain conformity/ understanding, argue, and respect opinions for a joint decision between lecturers and students	**Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in making questions and statements during interactive discussions			
EXAM III								**25**	
12	Students describe the TAUTOMERIZATION OF KETO-ENOL compounds and explain the chemical reactivity of the α of carbonyl groups in an organic chemical reaction	Alpha substitution in carbonyl compounds: alkylation and acylation reaction via DEM (diethyl malonate) and acetoacetate ester	**Face-to-face lectures, covering**: 1. Lecture 2. Class Interactive Discussion 3. Review of Discussion Results ***4.*** Quiz Task design Tables 2 and 3	3 × 50 min	1. Gain insight and explanation of KETO-ENOL TAUTOMERIZATION and α-CARBONYL SUBSTITUTION REACTION 2. Interact with students and: • Lecturers • Other students • Teaching materials 3. Gain conformity/ understanding, argue, and respect opinions for a joint decision between lecturers and students	***Hard skill:*** Completeness and correctness of explanations of the physicochemical properties of keto-enol, reactions and mechanisms of α-carbonyl substitution (alkylation via DEM and acetoacetate esters) and simple synthesis correctly **Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in making questions and statements during interactive discussions	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**

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13 and 14	Students can explain CARBONYL CONDENSATION REACTIONS in various organic chemical reactions and describe the mechanism	Carbonyl condensation reaction	**Face-to-face lectures, covering**: 1. Lecture 2. Class Interactive Discussion 3. Review of Discussion Results ***4.*** Quiz Task design Tables 2 and 3	6 × 50 min	1. Gain insight and explanation of CARBONYL CONDENSATION REACTION 2. Interact with students and: • Lecturers • Other students • Teaching materials 3. Gain conformity/ understanding, argue, and respect opinions for a joint decision between lecturers and students	***Hard skill:*** Completeness and correctness of explanations of aldol (cyclic-acyclic) reactions, Claisen and Dieckman, Michael acceptor and donor, Robinson annulation and simple synthesis correctly **Soft Skills:** 1. Activeness 2. Cooperation 3. Responsibility 4. Discipline accuracy and thoroughness in making questions and statements during interactive discussions	Scoring rubrics Table 4, 5, and 6		**1** **2, 3, 4**
EXAM IV/FINAL								**25**	

Table 2. Assignment of Interactive Discussions in Class and Quiz

Week of	Topic	Task Objectives	Task Description	Assessment Criteria
2	Meetings 1 to 4	Train students to achieve the final ability of topics 1 and 2	The list of questions (*problem sets*) of topics 1 and 2 submitted via LMS/WA a week before the meeting, done in groups	Accuracy, completeness, and clarity of individual answers
3		Train students to achieve the final ability of topics 2 and 3	The list of questions (*problem sets*) of topics 2 and 3 submitted via LMS/WA a week before the meeting, done in groups	
4		Train students to achieve the final ability of topics 3 and 4	The list of questions (*problem sets*) of topics 3 and 4 submitted via LMS/WA a week before the meeting, done in groups	

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Topics				
EXAM 1 (Meeting topics 1 to 4)				
5	Meetings 5 to 7	Train students to achieve the final ability to meet topic 5	The list of questions (*problem sets*) of the subjects of meeting 5 submitted via LMS / WA a week before the meeting, was done in groups	Accuracy, completeness, and clarity of individual answers
6		Train students to achieve the final ability to meet topic 6	The list of questions (*problem sets*) of the subjects of meeting 6 submitted via LMS / WA a week before the meeting, was done in groups	
7		Train students to achieve the final ability to meet topic 7	The list of questions (*problem sets*) of the subjects of meeting 7 submitted via LMS / WA a week before the meeting, was done in groups	
Exercise II via LMS (Meeting topics 5 to 7)				
EXAM 2/MIDTERM (Meeting topics 5 to 7)				
8	Meetings 8 to 11	Train students to achieve the final ability to meet topic 8	The list of questions (*problem sets*) of the subjects of meeting 8 submitted via LMS / WA a week before the meeting, was done in groups	Accuracy, completeness, and clarity of individual answers
9		Train students to achieve the final ability to meet topic 9	The list of questions (*problem sets*) of the subjects of meeting 9 submitted via LMS / WA a week before the meeting, was done in groups	
10		Train students to achieve the final ability to meet topic 10	The list of questions (*problem sets*) of the subjects of meeting 10 submitted via LMS / WA a week before the meeting, was done in groups	
11		Train students to achieve the final ability to meet topic 11	The list of questions (*problem sets*) of the subjects of meeting 11 submitted via LMS / WA a week before the meeting, was done in groups	
Exercise III via LMS (Meeting topics 8 to 11)				
EXAM 3 (Meeting topics 8 to 11)				
12	Meetings 12 to 14	Train students to achieve the final ability to meet subject 12	The list of questions (*problem sets*) of the subjects of meeting 12 submitted via LMS / WA a week before the meeting, was done in groups	Accuracy, completeness, and clarity of individual answers
13		Train students to achieve the final ability to meet subject 13	The list of questions (*problem sets*) of the subjects of meeting 13 submitted via LMS / WA a week before the meeting, was done in groups	

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14		Train students to achieve the final ability to meet subject 14	The list of questions (*problem sets*) of the subjects of meeting 14 submitted via LMS / WA a week before the meeting, was done in groups	
Exercise IV via LMS (Meeting topics 12 to 14)				
EXAM 4/FINAL (Meeting topics 12 to 14)				

Table 3. Comprehensive Training Task Plan via LMS (4×)

Week of	Comprehensive exercise of	Task Objectives	Task Description	Assessment Criteria
1-4	I	Train students to achieve the final ability to meet subjects 1 to 4	List of questions (*problem set*) of the topics of meetings 1 to 4	Accuracy, completeness, and clarity of answers
5-7	II	Train students to achieve the final ability to meet subjects 5 to 7	List of questions (*problem set*) of the topics of meetings 5 to 7	Accuracy, completeness, and clarity of answers
8-11	III	Train students to achieve the final ability to meet subjects 8 to 11	List of questions (*problem set*) of the topics of meetings 8 to 11	Accuracy, completeness, and clarity of answers
12-14	IV	Train students to achieve the final ability to meet subjects 12 to 14	List of questions (*problem set*) of the topics of meetings 12 to 14	Accuracy, completeness, and clarity of answers

Table 4. Assessment Design:

Learning Outcomes	Interactive Discussions, Quiz, and Comprehensive Exercises	Test			
		Exam I	Exam II (Midterm)	Exam III	Exam IV (Final)
Able to describe structures based on functional groups and write nomenclature IUPAC	√	√	√	√	√
Able to identify and compare the physical properties of organic compounds based on structure and functional groups	√	√	√	√	√

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Mastering the basic theory of reactions and reaction mechanisms of organic compounds based on chemical properties and their reactivity	√	√	√	√	√
Skillfully analyze a chemical synthesis reaction based on the basic principles of structure and reactivity of organic compounds.	√	√	√	√	√

Table 5. Assessment Weights

Assessment Criteria	Score Range	Value Weight (%)	Information
Weekly Task Assessments, Quiz and Comprehensive Exercises Small group presentations: 1. Systematics and content of presentation; 2. Ability to respond to questions (whether or not appropriate); 3. Clarity of presentation (voice volume and intonation). Small group discussions and cooperative learning: 1. Communication Aspect: provides specific and easy-to-understand explanations; uses methods/tools (body movements, analogies, and concept maps) to help comprehension of messages by colleagues; uses constructive ways of expressing opinions and reasoning. 2. Discussion aspect: does not dominate discussions and contributes actively. 3. Openness aspect: ask for feedback on oneself and value colleagues' opinions; use the knowledge and experience of other members in the group as a source of knowledge. **4.** Other aspects of behavior: work together to develop a group work plan and conduct evaluations; willing to accept specific tasks/roles and share responsibilities.	55-100	15	Individual score
Lecture Assessment: Exam I Exam II (Midterm) Exam III Exam IV (Final)	 0-100 0-100 0-100 0-100	 25 20 25 25	 Individual value Individual value Individual value Individual value
Score of ORGANIC CHEMISTRY II (KIM 222 3(3-0))		**110**	

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Table 6. Interactive Discussion Assessment Criteria

Score Range	Group Discussion Assessment Criteria
90- 100	If students can provide specific and easy-to-understand explanations, use methods/tools (body movements, analogies, and concept maps) to help the understanding of messages by colleagues and use constructive ways in expressing opinions and reasoning. Students can contribute actively, respect the opinions of colleagues, can work together, and conduct evaluations in groups.
80--<90	If students can provide specific and easy-to-understand explanations, use methods/tools (body movements, analogies, and concept maps) to help the understanding of messages by colleagues and use constructive ways in expressing opinions and reasoning. Students can contribute actively and value the opinions of colleagues in the group.
70--<80	If students can provide specific and easy-to-understand explanations, use ways/tools (body movements, analogies, and concept maps) to help understand messages by colleagues and use constructive ways of expressing opinions and reason. Students can contribute actively.
60--<70	If students can provide specific and easy-to-understand explanations, use methods/tools (body movements, analogies, and concept maps) in helping to understand messages by colleagues and use constructive ways in expressing opinions and reason.
55--<60	If students can provide specific explanations but are less easy to understand, use methods/tools (body movements, analogies, and concept maps) to help the understanding of messages by colleagues and use constructive ways in expressing opinions and reason.
	Material Presentation Assessment Criteria
90-100	If students can present material with good systematics, timeliness of delivery, good language use, ability to answer questions well / precisely, good and clear material delivery attitude

Required and Supporting Textbooks:

1. **McMurry J. 2016. *Organic Chemistry*. 9th Ed. California (USA): Brooks/Cole. (Wajib)**
2. Clayden J, Greeves N, Warren S, Wothers P. 2012. *Organic Chemistry*. New York (USA). Oxford University Press.
3. Solomons TWG, Fryhle CB. 2016. *Organic Chemistry*. 12th Ed. New Jersey (USA): John Wiley & Sons, Inc.
4. Brown WH, Foote C, Iverson BL, Anslyn EV, Novak BM. 2012. *Organic Chemistry*. 6th Ed. California (USA): Brooks/Cole.

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ONLINE LEARNING ACTIVITY PLAN

KIM 1222
ORGANIC CHEMISTRY II
3(3-0)

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ONLINE LEARNING ACTIVITY PLAN

1	Online Learning of	1 and 2
2	Course Name	Organic Chemistry II
3	Code/Credit	KIM 1222/3(3-0)
4	Developer Name	Purwantiningsih
5	Learning Outcomes	1. Able to describe structures based on functional groups and write nomenclature IUPAC 2. Able to identify and compare the physical properties of organic compounds based on structure and functional groups 3. Mastering the basic theory of reactions and reaction mechanisms of organic compounds based on chemical properties and their reactivity 4. Skillfully analyze a chemical synthesis reaction based on the basic principles of structure and reactivity of organic compounds
6	Expected Final Capabilities	**1st Online in week III:** Students are able to explain the physical-chemical properties of organic compounds ALCOHOL/PHENOL, and their analogues of thiol compounds related to an organic chemical reaction **2nd Online in 2nd week 11:** Able to explain the influence of structure on the reactivity of CARBOXYLIC ACID DERIVATIVES in an organic chemical reaction

Online Learning Materials of -	TOPICS COVERED	TEACHING MATERIALS AND ONLINE LEARNING ACTIVITIES	REFERENCES AND OTHER RESOURCES
1 on Week 3	Alcohols, Phenol, and Thiol	**1st Online Teaching Materials**: Lecture material on the topic of Alcohols, Phenol, and Thiol (file .pdf)	**1.** McMurry J. 2016. *Organic Chemistry*. 9th Ed. California (USA): Brooks/Cole. (Required)

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		1st Discussion Forum: Conduct discussions between lecturers and students; and among students to discuss the 1st Online Study Material. **1st task**: Interactive discussion about triggers that have been sent 1 week in advance via LMS. Students are required to upload the results of discussions with their groups in the assignment room at LMS. During the ZOOM meeting, they explained their duties to all the students present and the lecturer gave a review **1st Quiz (*Mini-Fast-Self):*** Do questions related to Online Study Material 1 in the form of multiple-choice and limited-time questions in the form of electronic form/QUIZ	
2 at week 11	Carboxylic acid derivatives	**2nd Online Teaching Materials**: Lecture material on the topic of Carboxylic Acid Derivatives (.pdf file) is uploaded on LMS **2nd Discussion Forum** : Conduct discussions between lecturers and students; amongst students to discuss the 2nd Online Study Material. **1st task**: Interactive discussion of TRIGGER QUESTIONS that have been sent 1 week in advance via LMS. Students are required to upload the results of discussions with their groups in the assignment room at LMS. During the ZOOM meeting, they explained their duties to all the students present and the lecturer gave a review **1st Quiz (*Mini-Fast-Self):***	**1.** McMurry J. 2016. *Organic Chemistry*. 9th Ed. California (USA): Brooks/Cole. (Wajib)

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		Do questions related to Online Study Material 2 in the form of multiple-choice and limited-time questions in the form of electronic form/QUIZ	

LEARNING UNIT

KIM 222
ORGANIC CHEMISTRY II
3(3-0)

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LEARNING UNIT

Course Name	:	Organic Chemistry II
Code/Credit	:	KIM 222/3(3-0)
Meeting	:	1
Time Allocation	:	300 min
Learning Outcome	:	1. Able to describe structures based on functional groups and write nomenclature IUPAC 2. Able to identify and compare the physical properties of organic compounds based on structure and functional groups 3. Mastering the basic theory of reactions and reaction mechanisms of organic compounds based on chemical properties and their reactivity 4. Skillfully analyze a chemical synthesis reaction based on the basic principles of structure and reactivity of organic compounds.
Final Capabilities	:	Students can explain the physical and chemical properties of organic compounds ORGANOHALIDEs in an organic chemical reaction
Study Material on the Royal Society of Chemistry (RSC) Chemistry Curriculum Map	:	Functional groups in organic compounds, Functionality can be used to predict reactions, Types of organic reactions, reactions, and structure of alkyl halides; organometallics, Organic synthesis
Indicator		
I. Learning Objectives	:	Provide insight and explanation of organic compounds ORGANOHALIDES and *Soft Skills* students to actively express opinions through discussion, cooperation / group work, be responsible for their duties, discipline and respect the opinions of others when arguing
II. Learning Materials	:	ORGANOHALIDES
III. Learning Methods	:	Synchronous-Face-to-Face-Offline

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IV. Learning Steps

Phase	Teacher Activities	Student Activities	Soft skill	Learning Tools/Materials/Resources
(1)	(2)	(3)	(4)	(5)
Initial Activities	• Open a meeting • Introduce oneself • Explain the course contract • Explain the LO of the course and each subject • Explain coursework	• Listening • Watching • Take a note	Discipline	LCD Laptop Whiteboard Board marker
Core Activities	• Describes in general terms about organohalide functional groups and their abundance in nature • Explain IUPAC nomenclature and TRIVIAL organohalides • Explain physical properties (boiling point, solubility in water) by intermolecular force factors • Describes the preparation of organohalide compounds • Describe nucleophilic substitution reactions and SN1 and SN2 reaction mechanisms • Describe elimination substitution reactions and E1 and E2 reaction mechanisms • Explain the factors that influence competition for substitution and elimination • Interactive discussion about triggers (students explain their proposed answers)	• Listening • Watching • Take a note • Explaining • Commenting/answering • Asking questions (feedback)	Discipline Communication Responsibility	LCD Laptop Whiteboard Board marker
Final Activities	• Summing up the material that has been delivered • Verifying the material that has been submitted with the LO of the subject matter • Close a meeting • Provide a QUIZIZZ link as assign homework. Opening time 24 hours.	• Listening • Watching • Take a note • Measuring self-ability	Discipline	LCD Laptop Whiteboard Board marker Link QUIZIZZ

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V. ASSESSMENT CRITERIA

1. Evaluate student achievement using established achievement indicators
2. Provide assignments (homework) for material that has been submitted via QUIZIZZ
3. Evaluate student discipline in attending lectures such as entering on time and not doing disruptive activities throughout the lecture

VI. TEXTBOOK

McMurry J. 2016. *Organic Chemistry*. 9th. California (USA): Brooks/Cole. (Required)