	Universitas Negeri Surabaya Faculty of Mathematics and Natural Sciences Undergraduate Chemistry Study Program	Document Code

SEMESTER LEARNING PLAN

Courses	CODE	Course Family	Credit Weight			SEMESTER	Compilation Date
Organic Chemistry I: Basic Theory and Monofunctional Compounds	4720103117		T=3	P=0	ECTS=4.77	2	July 18, 2024

AUTHORIZATION	SP Developer	Course Cluster Coordinator	Study Program Coordinator
	.....	.....	Dr. Amaria, M.Si.

Learning model	**Project Based Learning**
Program Learning Outcomes (PLO)	**PLO study program that is charged to the course**
	Program Objectives (PO)
	PLO-PO Matrix

	P.O

PO Matrix at the end of each learning stage (Sub-PO)

P.O	Week															
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Short Course Description	Study of structural concepts and theories, alkanes, cycloalkanes, alkenes, alkynes, basics of isomerism concepts, alkyl halides, introduction to SN1 and SN2 reactions, aromatic compounds, alcohol-ethers, aldehyde-ketones, carboxylic acids and their derivatives, and amines. Lectures are carried out using various methods, including presentations, questions and answers, and discussions.
References	**Main :**

1. Carey, Francis A. 2000.ORGANICCHEMISTRY.fourth edition. TheMcGraw-Hill Companies, Inc. All rights reserved, New York, the United States ofAmerica. ISBN 0-07-290501-8,ISBN 0-07-117499-0 (ISE)
2. Fessenden, R. J. dan Fessenden,J. S. (1998).Kimia Organik. Jilid
3. Penerjemah AH Pudjaatmaka. Jakarta: Erlangga
4. Fessenden, R. J. dan Fessenden,J. S. (1998).Kimia Organik. Jilid
5. Penerjemah AH Pudjaatmaka. Jakarta: Erlangga
6. Hart, H. , Craine, L. E. &Hart, D. J. (2003).Kimia Organik. Suatu Kuliah Singkat. Edisi ke XI. Penerjemah: Achmadi, S. S. , Jakarta: Erlangga.
7. Michael B. Smith and Jerry March, 2007,Advance Organic ChemistryREACTIONS, Mechanism and structure , 6th edition, Published by John Wiley & Sons, Inc. ,Hoboken, New Jersey Published simultaneously in Canada
8. Solomon,T. W. G. & Fryhle, C. B. (2011).OrganicChemistry.New York: John Wiley & Sons, Inc.

Supporters:	
Supporting lecturer	Prof. Dr. Suyatno, M.Si. Prof. Dr. Tukiran, M.Si.

Week-	Final abilities of each learning stage (Sub-PO)	Evaluation		Help Learning, Learning methods, Student Assignments, [Estimated time]		Learning materials [References]	Assessment Weight (%)
		Indicator	Criteria & Form	Offline (*offline*)	Online (*online*)		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

1	1. Students understand the Organic Chemistry-12 lecture system. Explains the structure of molecules and can determine organic compounds	1. Explain the RPS, lecture system, assessment system, determination of graduation, and lecture rules for Organic Chemistry-12. Explain the hybridization of carbon atoms 3. Explain the difference between sigma and pi bonds in organic compounds 4. Explain electron delocalization 5. Describe the resonance structure of an organic compound	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
2	Explain the structure, nomenclature, concept of structural isomers, as well as the properties and synthesis of alkane and cycloalkane compounds	1. Explain the structure of alkane and cycloalkane compounds. 2. Explain the physical and chemical properties of alkane and cycloalkane compounds and their isomers. 3. Explain the synthesis reactions for alkane and cycloalkane compounds.	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
3	Explain the structure, nomenclature, concept of structural isomers, as well as the properties and synthesis of alkene and alkyne compounds.	1. Explain the structure of alkene and alkyne group compounds 2. Explain the physical and chemical properties of alkene and alkyne group compounds and their isomerism 3. Explain the synthesis reactions of alkene and alkyne group compounds	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
4	Explain geometric isomers, conformations, and optical isomers in organic compounds	1. Explain geometric isomers in alkenes and alicyclics 2. Explain the conformation of acyclic and cyclic compounds 3. Explain optical isomers in organic compounds 4. Describe the absolute configuration of a chiral compound	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%

5	Explain geometric isomers, conformations, and optical isomers in organic compounds	1. Explain geometric isomers in alkenes and alicyclics 2. Explain the conformation of acyclic and cyclic compounds 3. Explain optical isomers in organic compounds 4. Describe the absolute configuration of a chiral compound	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
6	Explain the structure, nomenclature and properties as well as the synthesis of alkyl halogenide compounds as well as an introduction to the reaction mechanism SN-1 SN-2, E-1, and E-2.	1. Explain the structure of alkyl halide group compounds 2. Explain the physical and chemical properties of alkyl halide group compounds 3. Explain the synthesis reaction of alkyl halide group compounds 4. Explain the reaction mechanisms of SN-1, SN-2, E-1, and E-2 in alkyl halides	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
7	Explain the structure, nomenclature and properties as well as the synthesis of alkyl halogenide compounds as well as an introduction to the reaction mechanism SN-1 SN-2, E-1, and E-2.	1. Explain the structure of alkyl halide group compounds 2. Explain the physical and chemical properties of alkyl halide group compounds 3. Explain the synthesis reaction of alkyl halide group compounds 4. Explain the reaction mechanisms of SN-1, SN-2, E-1, and E-2 in alkyl halides	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
8	Midterm exam		**Criteria:** Attached	Midterm Exam 3 X 50			0%
9	Explain the structure, nomenclature and properties of aromatic hydrocarbons and be able to apply substitution reactions for the synthesis of aromatic compounds	1. Explain the molecular structure of aromatic compounds. 2. Explain the relationship between aromatic molecular structure and resonance stability. 3. Explain substitution reactions in aromatic compounds. 4. Explain synthesis reactions in aromatic compounds	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%

10	Understand the structure, nomenclature, isomers, classification of properties and synthesis of phenol ether alcohol compounds.	1. Explain the structure of alcohol-phenol and ether group compounds 2. Explain the physical and chemical properties of alcohol, phenol and ether group compounds 3. Explain the synthesis reaction of alcohol-phenol and ether group compounds	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
11	Understand the structure, nomenclature, isomers, classification of properties and synthesis of phenol ether alcohol compounds.	1. Explain the structure of alcohol-phenol and ether group compounds 2. Explain the physical and chemical properties of alcohol, phenol and ether group compounds 3. Explain the synthesis reaction of alcohol-phenol and ether group compounds	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
12	Explains the structure, nomenclature, properties and is able to predict isomers and can synthesize carbonyl compounds.	1. Explain the structure of aldehyde and ketone group compounds 2. Explain the physical and chemical properties of aldehyde and ketone group compounds 3. Explain the synthesis reactions of aldehyde and ketone group compounds	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
13	Explain the structure, nomenclature, isomers, properties, especially acidity and synthesis of carboxylic acids and their derivatives.	1. Explain the structure of carboxylic acid group compounds and their derivatives 2. Explain the physical and chemical properties of carboxylic acid group compounds and their derivatives 3. Explain the synthesis reactions of carboxylic acid group compounds and their derivatives	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%

14	Explain the structure, nomenclature, isomers, properties, especially acidity and synthesis of carboxylic acids and their derivatives	1. Explain the structure of carboxylic acid group compounds and their derivatives 2. Explain the physical and chemical properties of carboxylic acid group compounds and their derivatives 3. Explain the synthesis reactions of carboxylic acid group compounds and their derivatives	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
15	Explain the structure, nomenclature, properties (especially basicity), clarification and synthesis of amines	1. Explain the structure of amine group compounds 2. Explain the physical and chemical properties of amine group compounds 3. Explain the synthesis reaction of amine group compounds	**Criteria:** Attached	Presentations, questions and answers, discussions, solving questions, and assignments 3 X 50			0%
16	Understand concepts, attitudes and skills in the Organic Chemistry-1 course	Understand concepts, attitudes and skills in the Organic Chemistry-1 course	**Criteria:** Attached	Final Semester Examination (UAS) 2 X 50			0%

Evaluation Percentage Recap: Project Based Learning

No	Evaluation	Percentage
		0%

Notes

1. **Learning Outcomes of Study Program Graduates (PLO - Study Program)** are the abilities possessed by each Study Program graduate which are the internalization of attitudes, mastery of knowledge and skills according to the level of their study program obtained through the learning process.
2. **The PLO imposed on courses** are several learning outcomes of study program graduates (CPL-Study Program) which are used for the formation/development of a course consisting of aspects of attitude, general skills, special skills and knowledge.
3. **Program Objectives (PO)** are abilities that are specifically described from the PLO assigned to a course, and are specific to the study material or learning materials for that course.
4. **Subject Sub-PO (Sub-PO)** is a capability that is specifically described from the PO that can be measured or observed and is the final ability that is planned at each learning stage, and is specific to the learning material of the course.
5. **Indicators for assessing** ability in the process and student learning outcomes are specific and measurable statements that identify the ability or performance of student learning outcomes accompanied by evidence.
6. **Assessment Criteria** are benchmarks used as a measure or measure of learning achievement in assessments based on predetermined indicators. Assessment criteria are guidelines for assessors so that assessments are consistent and unbiased. Criteria can be quantitative or qualitative.
7. **Forms of assessment:** test and non-test.
8. **Forms of learning:** Lecture, Response, Tutorial, Seminar or equivalent, Practicum, Studio Practice, Workshop Practice, Field Practice, Research, Community Service and/or other equivalent forms of learning.
9. **Learning Methods:** Small Group Discussion, Role-Play & Simulation, Discovery Learning, Self-Directed Learning, Cooperative Learning, Collaborative Learning, Contextual Learning, Project Based Learning, and other equivalent methods.
10. **Learning materials** are details or descriptions of study materials which can be presented in the form of several main points and sub-topics.
11. **The assessment weight** is the percentage of assessment of each sub-PO achievement whose size is proportional to the level of difficulty of achieving that sub-PO, and the total is 100%.
12. TM=Face to face, PT=Structured assignments, BM=Independent study.