



SEMESTER LEARNING PLAN
S-1 CHEMISTRY STUDY PROGRAM
FACULTY OF MATH AND SCIENCE
BENGKULU UNIVERSITY

Course Identity		Identity of course tutor	
Course Code	: KIM-302	Lecturer Name	: Prof. Dr. Irfan Gustian, M.Si
Course Name	: Chemical Kinetics	Field Group	: Physical Chemistry
Course Weight (credits)	: 2 (2-0)		
Semester	: 5		
Prerequisite Course	: Physical Chemistry II		
Program Learning Outcomes (PLO)			
PLO Code		PLO Element	
S-9	:	Demonstrate a responsible attitude towards work in their area of expertise independently;	
KU-1	:	Able to apply logical, critical, systematic and innovative thinking in the context of developing or implementing science and technology that pays attention to and applies humanities values in accordance with their field of expertise.	
KU-2	:	Able to demonstrate independent, quality and measurable performance.	
Scientific Study Materials	:	In this lecture discussed: 1. Understanding and insight into Chemical Kinetics. 2. Reaction kinetics 3. Reaction Rate Constant 4. Concentration relationship with time 5. Order of Reaction (0, 1, 2, 3.) 6. Determination of Reaction Order 7. Complex Reaction 8. Effect of Temperature on Reaction Rate 9. Gas Collision Theory of Bimolecular Reaction 10. Chain reaction 11. Catalyst 12. Photo Chemistry : Laws of Photo Chemistry and Photochemical Reaction Kinetics 13. Photosynthesis Reaction	
LO Course	:	1) Have adequate knowledge of Chemical Kinetics. 2) Mastering the concept, reaction speed, reaction order and chain reaction. 3) Have and understand the laws of photo chemistry and Photochemical Reaction Kinetics. 4) Understand Photosynthesis Reaction	
Learning Experience	:	Students are given knowledge about Chemical Kinetics, the concept of reaction speed, reaction order and chain reactions, the laws of photo chemistry and Kinetics of Photochemical Reactions and Photosynthetic Reactions	
Reference list	:	1. Atkins, PW, 1990, Physical Chemistry, 4th ed., Oxford University Press. 2. Castellan, GW, 1983, Physical Chemistry, third ed., Addison Wesley Publishing Company.	

Stage	Final ability	Subject matter	Reference	Learning methods	Time (minutes)	Evaluation*	
						Indicator/CPL code	Assessment technique/weight
1	2	3	4	5		6	7
1	Applying lecture rules and course assessment components understanding and insight into Chemical Kinetics	1. Lecture Contract 2. Study rules 3. Assessment components 4. Reference/literature/reference book	Ref No :-	Lecture Class discussion	2x50	Knowing the components of assessment and references	5%
2	Able to understand Reaction kinetics	• Reaction kinetics	Ref No : 1,2	Literature search, Student discussions, Assignment of materials related to meetings	2x50	Understand the concept of Reaction Speed	7.5%
3-4	Understanding about the Reaction Rate Constant, Relationship Concentration with time	• Reaction Rate Constant • Relationship Concentration with time	Ref No : 1,2	Literature search, Student discussions, Assignment of materials related to meetings	4x50	Can explain the concept of reaction constant	7.5%
5-6	Understand Order of Reaction (0, 1, 2, 3.)	• Reaction (0, 1, 2, 3.) • L Practice Problem Order Reaction	Ref No : 1,2	Literature search, Student discussions, Assignment of materials related to meetings	4x50	Understand Reaction Order (0, 1, 2, 3.) and can solve the problem	5%
7	Understand draft Determination of Reaction Order	• Determination of Reaction Order	Ref No : 1,2	Literature search, Student discussions, Assignment of materials related to meetings	2x50	Understanding about Determination of Reaction Order	5%
8	Mid-semester Evaluation	MIDTERM EXAM			2x50		20%
9-10	Understand about complex reactions and the effect of time on reaction rates	• Complex reaction • Effect of time on reaction speed	Ref No : 1,2	Literature search, Student discussions, Assignment of materials related to meetings	4x50	Can explain about complex reactions and the effect of time on reaction rates	7.5%
11-12	Students can understand Gas Collision theory of Bimolecular Reactions and Chain Reactions	• Gas Collision theory of Bimolecular Reaction • Chain reaction	Ref No : 1,2	Literature search, Student discussions, Assignment of materials related to meetings	4x50	Can explain Gas Collision theory of Bimolecular Reactions and Chain Reactions	7.5%
13	Students can understand about catalysts and chemical kinetics	• Catalyst	Ref No : 1,2	Literature search, Student discussions, Assignment of materials related to meetings	2x50	Can explain about catalysts and how they work	5%

14-15	Students can understand the laws of photochemistry, kinetics of photochemical reactions and photosynthetic reactions	• the laws of photo chemistry • kinetics Chemical Photo Reaction • Photosynthetic reaction	Ref No : 1,2	Literature search, Student discussions, Assignment of materials related to meetings	4x50	Students can explain the laws of photochemistry, kinetics of photochemical reactions and photosynthetic reactions	5%
16	End of Semester Evaluation	FINAL EXAMS			2x50		25%

Appendix 1. Graduate Learning Outcomes

According to the Attachment of Permenristekdikti No. 44 of 2015 concerning the National Standard of Higher Education

A. Attitude Formula

The attitudes that must be possessed by every graduate of academic, vocational and professional education programs are as follows,

CPL Code	Attitude Formula
S-1	fear God Almighty and be able to show a religious attitude
S-2	upholding human values in carrying out tasks based on religion, morals, and ethics
S-3	contribute to improving the quality of life in society, nation, state, and the progress of civilization based on Pancasila
S-4	act as citizens who are proud and love their homeland, have nationalism and a sense of responsibility to the country and nation
S-5	respect the diversity of cultures, views, religions, and beliefs, as well as the opinions or original findings of others
S-6	work together and have social sensitivity and concern for society and the environment
S-7	obey the law and discipline in social and state life
S-8	internalize academic values, norms, and ethics
S-9	demonstrate an attitude of responsibility for work in the field of expertise independently;
S-10	internalize the spirit of independence, struggle, and entrepreneurship

B. General Skills Formula

B1. Degree program

CPL Code	General Skills Formula
KU-1	Able to apply logical, critical, systematic and innovative thinking in the context of developing or implementing science and technology that pays attention to and applies humanities values in accordance with their field of expertise.
KU-2	Able to demonstrate independent, quality and measurable performance.
KU-3	Able to examine the implications of the development or implementation of science and technology that pays attention to and applies humanities values according to their expertise based on scientific principles, procedures and ethics in order to produce solutions, ideas, designs or art criticism, compile scientific descriptions of the results

	of their studies in the form of a thesis or final project report , and upload it on the college website.
KU-4	Compile a scientific description of the results of the studies mentioned above in the form of a thesis or final project report and upload it on the university's website
KU-5	Able to make appropriate decisions in the context of solving problems in their area of expertise based on the results of information and data analysis.
KU-6	Able to maintain and develop a network with supervisors, colleagues, colleagues both inside and outside the institution.
KU-7	Able to be responsible for the achievement of group work results and supervise and evaluate the completion of work assigned to workers under their responsibility.
KU-8	Able to carry out the evaluation process of work groups under their responsibility and able to manage learning independently
KU-9	Able to document, store, secure and retrieve data to ensure validity and prevent plagiarism.

B2. Diploma Three Program

CPL Code	General Skills Formula
KU-1	Able to complete a wide range of work and analyze data with a variety of appropriate methods, both those that have not been or have been standardized
KU-2	Able to demonstrate quality and measurable performance
KU-3	Able to solve work problems with the nature and context in accordance with the field of applied expertise based on logical thinking, innovative, and responsible for the results independently
KU-4	Able to compile reports on results and work processes accurately and accurately and communicate them effectively to other parties in need
KU-5	Able to work together, communicate and be innovative in their work
KU-6	Able to be responsible for the achievement of group work results and carry out supervision and evaluation of the completion of work assigned to workers under their responsibility
KU-7	Able to carry out the process of self-evaluation of the work group under their responsibility and able to manage the development of work competencies independently
KU-8	Able to document, store, secure and retrieve data to ensure validity and prevent plagiarism