SEMESTER LEARNING PLAN

CHEMISTRY STUDY PROGRAM S-1

FACULTY OF MATH AND SCIENCE

BENGKULU UNIVERSITY

Course Identity			**Identity of course tutor**		
Course Code	:	**KIM-906**	Lecturer Name	:	Prof. Dr. Irfan Gustian, S.Si, M.Si
Course Name	:	**Porous Material Chemistry**	Field Group	:	Physical Chemistry
Course Weight (credits)	:	2 (2-0)			
Semester	:	Choice			
Prerequisite Course	:	Thermodynamics and equilibrium, Phase and solution equilibrium			

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	:	
LO Course	:	This course is an elective course for the FMIPA chemistry study program which discusses the introduction of the chemical concepts of porous materials, classification of porous materials, porous metals, porous ceramics, polymer foams, techniques for making porous materials, applications of porous materials, special porous materials (amorph porous matal foam, nanoporous metal foams and porous metallic films), porous ceramics fabrication, porous ceramic applications, polymer foam manufacturing, applications polymer foam, porous material characterization methods Porosity review, microscopic analysis, gas permeation and adsorption tests, X-ray, BET and other physical chemistry (such as compressibility, dynamic hysteresis)
Learning Experience	:	After attending this course, students are expected to understand the chemical concepts of porous materials, classification of porous materials, porous metals, porous ceramics, polymer foams, techniques for making porous materials, applications of porous materials, special porous materials (amorph porous matal foam, nanoporous metal foam and porous metallic films), porous ceramics fabrication, porous ceramic applications, polymer foam manufacturing,applicationpolymer foam, porous material characterization methods Porosity review, microscopic analysis, gas permeation and adsorption tests, X-ray, BET and other physical chemistry (such as compressibility, dynamic hysteresis).
Reference list	:	1. Porous Materials, Processing and Applications, By PS LIU, GF CHEN, Butterworth-Heinemann is an imprint of Elsevier. 2. General introduction to high technology and new materials, Zeng HM. Beijing: Chins, Science and Technology Press; 1993. 3. The latest journals related to the Chemistry of Porous Materials. 4. Recent Porous Materials Chemistry research reports.

SEMESTER LEARNING PLAN

Course: Porous Material Chemistry
Course code: KIM-906
Credit: 2(2-0)

WEEK TO	EXPECTED FINAL ABILITY	STUDY MATERIALS (teaching materials)	FORMS OF LEARNING	ASSESSMENT CRITERIA (indicator)	ASSESSMENT VALUE WEIGHT
1-2	• Students can understand the concept of understanding the chemical concepts of porous materials, classification of porous materials	• Porous material chemistry concepts, classification of porous materials	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%
3-4	• Students can recognize various porous metals, porous ceramics, polymer foams	• Various porous metals, porous ceramics, polymer foams	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%
5-6	• Students can understand and explain about the technique of making porous materials	• Porous material manufacturing techniques	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%

7	• Students understand the application of porous materials	• porous material application	• Literature search, Student discussions, Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%
8	• Understand the principle of special porous materials amorph porous matal foam	• Principle of amorphous porous matal foam.	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%
	Mid semester Exam				20%
9	• Understanding of special porous materials nanoporous metal foam	• special porous material nanoporous metal foam	• Literature search, Student discussions, Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%
10	• Explain and understand porous film metallic chemistry.	• porous metallic film	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%

11-12	• Understand and be able to explainporous ceramic fabrication	• porous ceramic fabrication	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%
13	• Understand and explain producing polymer foam, polymer foam applications	Polymer foam production, polymer foam applications	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%
14	• Explain the method of characterizing porous materials. Porosity review, microscopic analysis	• Porous material characterization Porosity review, microscopic analysis	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%
15-16	• Students understand the principles of permeation and gas adsorption tests (BET), X-rays, and other physical chemistry (such as compressibility, dynamic hysteresis).	• principles of permeation and gas adsorption (BET) tests, X-ray, and other physical chemistry (eg compressibility,	• Contextual Learning (CL), Literature search, Small Group Discussion (SGD), Discovery Learning Assignment of materials related to meetings	• Completeness and correctness of explanation • Sharpness and completeness of analysis	5%

		dynamic hysteresis).			
	Final Semester Exam				25%

Bengkulu, August 8, 2022
lecturer

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