


 FPMIPA UPI	SILABUS	No. Dok. : FPMIPA-SE-SL-12 Revisi : 00 Tanggal : 19 Januari 2011 Halaman : 1 dari 2
	Introduction to Physical Chemistry SE-402, 2 credit 2nd Semester	
Dibuat Oleh :  (Dr. Agus Setiabudi)	Diperiksa Oleh :  (Dr. Diana R.)	Disetujui Oleh :  (Dr. phil. Ari Widodo)

Description

The course objectives is to offer an introductory, conceptual course with only the minimal amount of mathematical content, which touches on virtually all aspects of physical chemistry. The Topics includes elements of gas theory, thermodynamic, chemical kinetics and electrochemistry. The elements of gas theory covers Ideal gas equations; kinetic molecular theory of gases real gases; Van der Waal's equation. Elements of thermodynamics discusses concepts of thermodynamics - zeroeth law; first law; entropy; second law; heat capacities; enthalpy; free energy and chemical equilibria; third law. The chemical kinetics discuss rates of reaction; factors influencing rates of reaction; order of reaction; first order reactions; second order reactions; molecularity; influence of temperature; Arrhenius equation; activation energy. Catalysis, enzyme catalysis. While elements of electrochemistry - resistance; conductance, molar conductance; electrolytes; transport numbers and ion mobility; Electrochemical cells, galvanic cells, redox reaction, cell reaction. electro chemical series. Nernst equation. Acids, bases, pH, indicators and buffers. The accompanying practical course comprises experiments illustrating the principles discussed in the lectures. An inquiry based approach will be used during the course. Evaluation will be base on

Syllabus

1. Course Identity of Course

- | | |
|-------------------|---|
| a. Name | : Introduction To Physical Chemistry |
| b. Code | : SE 402 |
| c. Credit | : 2 |
| d. Grade | : 1 st of grade, on 2 nd semester |
| e. Type of Course | : Concentrations Competencies Courses |
| f. Program | : IPSE-FPMIPA UPI/S1 |
| g. Aims
of | : able to understand a basics concept of kinetics theory
gases, thermodynamics, and kinetics |
| h. Approach | : Inquiry based learning |
| i. Scoring System | : 4 unit tests and 4 student assignment |
| j. Status | : Compulsory |
| k. Prerequisite | : Foundation of Chemistry |
| l. Lecturer | : Dr. Agus Setiabudi, M.Si., Dr. Hendrawan |



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Meeting's Agenda

1.	KINETICS THEORY OF GASES Ideal gas equations; kinetic molecular theory of gases; compression factor and Z/P curves
2.	Real gases; Van der Waal's equation.
	THERMODYNAMICS
3.	Thermodynamics - zeroeth law; first law;
4.	Entropy; second law.
5.	Heat capacities; enthalpy;
6.	Free energy and chemical equilibria; third law
	CHEMICAL KINETICS
7.	Kinetics - rates of reaction;
8.	Factors influencing rates of reaction, order of reaction
9.	First order reactions; second order reactions; molecularity
10.	Influence of temperature; Arrhenius equation;
11.	Activation energy. Catalysis, enzyme catalysis
12.	Electrochemistry - resistance; conductance, molar conductance; electrolytes; transport numbers and ion mobility;
13.	Electrochemical cells, galvanic cells, redox reaction, cell reaction
14.	Electro chemical series. Nernst equation. Acids, bases, pH, indicators and buffers.

The accompanying practical course comprises experiments illustrating the principles discussed in the lectures.

Assesments

UTS, UAS, and also lecturer's policy.

Recommended reading:

Main first year text