

Module Handbook

Module Name	Physical Chemistry II
Module Level	Bachelor
Abbreviation, if applicable:	KIF204
Sub-heading, if applicable:	-
Courses included in the module, if applicable:	-
Semester/term:	3 rd /second year
Module coordinator(s):	Dr. Abdulloh, M.Si
Lecturer(s):	Mohammad Zakki Fahmi, Ph.D Drs. Handoko Darmoekoesoemo, DEA Siti Wafiroh, S.Si., M.Si
Language:	Bahasa Indonesia
Classification within the curriculum	Compulsory course
Teaching format / class hours per week during semester:	3 hours lectures (50 min / hour)
Workload:	3 hours lecture, 3 hours structured activities and 3 hours individual activities, 13 weeks per semester, 117 hours per semester ~ 3.9 ECTS *
Credit Points:	3
Requirements:	Physical Chemistry I
Learning goals/competencies:	<p>General competence (Knowledge) Students are expected to solve problems related chemical basic concepts of chemical kinetics, transport processes that occur in the gas phase and liquid and also electrochemical phenomena.</p> <p>Specific competence :</p> <ol style="list-style-type: none"> 1. Able to resolve issues related to the concept of the fundamentals of kinetics 2. Able to calculate the reaction order, rate constants of reactions and reaction speed 3. Able to resolve issues associated with the complex reaction kinetics (reversible reaction, the reaction sequence, parallel reactions, the reaction of homogeneous catalysts, heterogeneous and enzymes). 4. Able to calculate the activation energy, temperature and Arrhenius constants) 5. Able to resolve problems related to transport and electrochemical processes 6. 6. Able to calculate the thermal and electrical conductivity, viscosity of liquid and diffusion coefficient, an electrochemical cell, the cell reaction, cell potential, electrode and kind, strong currents, the electrode potential, Gibbs free energy, equilibrium constants, solubility, measurement of pH and pK.
Content:	This course discusses the main points of discussion, as follows: Kinetic chemistry covers the basic concepts of kinetics, namely: the definition of the rate of the reaction, the reaction order and

	constants of the reaction, the solution analytically legal rate of reaction and the reaction order, activation energy, the effect of temperature on the rate reactions (Arrhenius equation), kinetics of complex reactions (reversible reaction, the reaction sequence, parallel reactions, the reaction of homogeneous catalysts, heterogeneous and enzymes). It also discusses the transport processes in the liquid phase and gas, the number of transport, conductivity thermal and electrical, viscosity liquids and coefficient of diffusion, electrochemical cell or reaction cell, the cell potential, electrode and kind, strong currents, the electrode potential, Gibbs free energy, equilibrium constants, solubility, measurement of pH and pK.
Attribut soft skill	Discipline and team-work
Study/exam achievements:	Students are considered to be competent and pass if at least : 1. Get score ≥ 55 2. Score Presentation : assessment 1 :10% assessment 2 : 10% UTS (mid exam) : 40% UAS (final exam) : 40 % 3. Score Grade 75,00 - 100 A 70,00 - 74,99 AB 65,00 – 69,99 B 60,00 – 64,99 BC 55,00 – 59,99 C 40,00 – 54,99 D 0,00 – 39,99 E
Forms of Media:	Projector and Whiteboard
Learning Methods	Lecture, discussion, and tutorial
Literature:	1. Atkins, P and Paula de J., 2010, Physical Chemistry, 9 th ed., Oxford University Press, New York. 2. Ira. N. Levine., 2009., Physical Chemistry, 6 th ed., McGrawn-Hill International Editions, New York
Notes:	*Total ECTS = {(total hours workload x 50 min) / 60 min } / 25 hours Each ECTS is equals with 25 hours