

Module Handbook

Module Name:	Physical Chemistry
Module Level:	Bachelor
Abbreviation, if applicable:	Lecture KIF201 Practical Work KIF206
Sub-heading, if applicable:	
Courses included in the module, if applicable:	
Semester/term:	2 / First year
Module coordinator(s):	Dr. Suko Hardjono, M.S.
Lecturer(s):	Dr. Suko Hardjono, M.S. Dr. Bambang Tri Purwanto, M.S. Dra. Nuzul Wahyuning Diyah, M.Si. Tri Widiandani, SSi, Sp.FRS Prof.Dr. Siswandono, M.S. Prof.Dr. Purwanto
Language:	Bahasa Indonesia
Classification within the curriculum:	Compulsory Course/ Elective Studies
Teaching format/class hours per week during the semester:	Lecture 100 minutes lectures, 13 lecture classes/semester Practical Work 100 minutes practical work classes, 13 practical work classes /semester
Workload:	Lecture Total 22 hours a semester Practical Work Total 22 hours a semester
Credit Points:	Lecture 2 Practical Work 1
Requirements:	
Learning goal/competencies:	<p>Knowledge</p> <ul style="list-style-type: none"> – To understand the concept of thermodynamics; and basic concepts and principles in physical chemistry. <p>Skills</p> <ul style="list-style-type: none"> – Critical thinking, comprehensive and valid operating scientific-academic, learn to make scientific decision-academic. <p>Competence</p> <ul style="list-style-type: none"> – To understand and able to apply the concept of taking measurements and determination of the equilibrium phase, reaction kinetics, the laws of thermodynamics, and the surface symptoms. – To understand and able to apply the taking measurements and determination of the equilibrium constants associated with phase two component system, reaction kinetics, and the laws of thermodynamics.

Content:	<p>Lecture Introduction of Chemical Physics, phase equilibrium, One Component the System, Two Component System, Three Components System, reaction kinetics, the effect of temperature and catalyst against reaction rate, laws of thermodynamics 1, 2, 3; surface symptoms (adsorption).</p> <p>Practical Work Introduction of Physical Chemistry (Practical); measurements and determination of the equilibrium constants associated with phase two component system; reaction kinetics; and the laws of thermodynamics.</p>
Study/exam achievements:	<p>Lecture Student are considered to be competent and pass if at least get 50% of maximum mark of the exams based learning.</p> <p>Final score (NA) is calculated as follow : 10% Task + 45% Exam 1+ 45% Exam II</p> <p>Final index is defined as follow : A : 100 > NA > 75 AB : 75 > NA > 70 B : 70 > NA > 65 BC : 65 > NA > 60 C : 60 > NA > 55 D : 55 > NA > 50 E : 50 < NA</p> <p>Practical Work Student are considered to be competent and pass if at least get 50% of maximum mark of the exams based learning.</p> <p>Final score (NA) is calculated as follow : 10% Discussion + 15% Post Test + 15 Practical Laboratory 20% Report + 40% Writing test.</p> <p>Final index is defined as follow : A : 100 > NA > 75 AB : 75 > NA > 70 B : 70 > NA > 65 BC : 65 > NA > 60 C : 60 > NA > 55 D : 55 > NA > 50 E : 50 < NA</p>
Forms of Media:	Slides and LCD Projector, whiteboards,
Literature:	<ol style="list-style-type: none"> 1. Atkins P & de Paula J, 2006, Physical Chemistry, 8th Ed, Oxford: Oxford University Press. 2. Chang R. 2007. Chemistry 10th Edition. New York: McGraw-Hill Book Company. 3. Connors, KA & Mecozzi S. 2010. Thermodynamics of Pharmaceutical System An Introduction to Theory and Applications. 2th Edition. Hoboken: John Wiley & Sons, Inc. 4. Florence, AT & Attwood, D. 2006. Physiochemical

	Principles of Pharmacy, 4 th Edition. New York: McMillan Publishing Co.
	5. Illich PP, 2010, Selected Problems in Physical Chemistry, Strategies and Interpretations, Berlin: Springer-Verlag.
	6. Levine, IN. 2009. Physical Chemistry, 6 th Edition. McGraww-Hill Book Company. New York.
	7. Maron SH, and Lado JB, 1974, Fundamentals of Physical Chemistry, 2 nd Ed, New York: Mac Millan & Co.
	8. Mortimer RG, 2008, Physical Chemistry, 3 rd Ed, Amsterdam: Elseiver.
	9. Sinko, PJ. Singh Y. 2011. Martin's Physical Pharmacy and Pharmaceuticals Sciences. 6 th Edition. Philadelphia: Lippincott Williams & Wilkins.
	10. Zumadahl, SS. Zumadahl SA. 2007. Chemistry, 7 th Edition. Boston: Houghton Mifflin Company.
Notes:	