



UNIVERSITI TEKNOLOGI MARA

CHM213: PHYSICAL CHEMISTRY

Course Name (English)	PHYSICAL CHEMISTRY APPROVED
Course Code	CHM213
MQF Credit	2
Course Description	This course is an introduction to the principles of basic physical chemistry covering thermochemistry, chemical kinetics, chemical equilibrium, ionic equilibrium and phase equilibrium.
Transferable Skills	Demonstrate ability to analyse issues/problems from multiple angles and make suggestions in physical chemistry
Teaching Methodologies	Lectures, Blended Learning, Lab Work, Tutorial
CLO	CLO1 Relate the concepts and solve quantitative problems associated with laws and theories in thermochemistry, chemical kinetics, chemical equilibrium, ionic equilibrium and phase equilibrium. CLO2 Conduct experiments associated with laws and theories in thermochemistry, chemical kinetics, chemical equilibrium, ionic equilibrium and phase equilibrium. CLO3 Interpret the graphs and diagrams in thermochemistry, chemical kinetics, chemical equilibrium, ionic equilibrium and phase equilibrium.
Pre-Requisite Courses	No course recommendations
Topics	
1. Thermochemistry 1.1) Introduction, definition and symbol 1.2) Endothermic and exothermic reactions 1.3) Calorimetry methods 1.4) Hess's law and Born Haber cycle	
2. Chemical Kinetics 2.1) Rate of reaction 2.2) Rate law and order of reaction 2.3) Factors affecting rate and molecular collision theory 2.4) Reaction mechanism	
3. Chemical Equilibrium 3.1) Equilibrium constant expression (K_c and K_p) 3.2) Le Chatelier Principle	
4. Ionic Equilibrium 4.1) Definition of Dissociation of acids and bases, (K_a and K_b) and degree dissociation acids and bases 4.2) Salt hydrolysis 4.3) Buffer solution	
5. Phase Equilibrium 5.1) Definition of phases, degree of freedom and component 5.2) One-component system 5.3) Two-component system 5.4) Partition coefficient	

Assessment Breakdown	%
Continuous Assessment	60.00%
Final Assessment	40.00%

Details of Continuous Assessment	Assessment Type	Assessment Description	% of Total Mark	CLO
	Online Quiz	Online Quiz	20%	CLO1
	Practical	Practical Report	20%	CLO2
	Test	Online Test	20%	CLO1

Reading List	Recommended Text	• Tan Yin Toon, <i>Chemistry for STPM</i> , 4 Ed., Penerbit Fajar Bakti
	Reference Book Resources	<ul style="list-style-type: none"> • Chang, R., <i>Chemistry</i>, 8 Ed., McGraw Hill • Brown, LeMay and Burstein, <i>Chemistry, The Central Science</i>, 7 Ed., Prentice Hall • Whitten, Davis, Peck and Stanley,, <i>General Chemistry</i>, 7 Ed., Thomson Brooks and Cole • Kho, Zaharah, Masterton and Cecile 2005, <i>Physical Chemistry For STPM</i>, Thomson Learning
Article/Paper List	This Course does not have any article/paper resources	
Other References	This Course does not have any other resources	