Course Specifications

General Information

Course name	Physical Chemistry(2)
Course number	CHEM2309
Faculty	
Department	
Course type	College Needs
Course level	2
Credit hours (theoretical)	3
Credit hours (practical)	0
Course Prerequisites	

Course Objectives

1 - (i) explain and use the terms: rate of reaction; rate equation; order of reaction; rate constant; half-life of a reaction; rate-determining step; activation energy; catalysis. deducing the order of a reaction by the initial rates method (ii) justifying, for zero- and first-order reactions, the order of reaction from concentration-time graphs (iii) verifying that a suggested reaction mechanism is consistent with the observed kinetics (iv) predicting the order that would result from a given reaction mechanism (v) calculating an initial rate using concentration data.

Intended Learning Outcomes

Knowledge and Understanding

* Determine the required conditions to describe chemical and physical processes.
* Fundamentals of kinetics of a chemical reaction in solution.
* Analyze problems of chemical kinetics to determine appropriate solutions.
* Understand the relation between speed of reaction and energy.

Course Contents

1 - Rate of a reaction (Average and instantaneous), factors affecting rate of reaction: concentration, temperature, catalyst; order and molecularity of a reaction, rate law and specific rate constant, integrated rate equations and half-life (only for zero and first order reactions), concept of collision theory (elementary idea, no mathematical treatment). Activation energy, Arrhenious equation.

Students Assessment

Assessment Method	TIME	MARKS
exam	first mid term	20%
exam	second mid term	20%
homework & others		10%
exam	final	50%

Books and References

Essential books	. Physical Chemistry, P.W. Atkins, ELBS. 2 Essentials of physical chemistry, Arun Bahl