Wayne County Community College District

COURSE SYLLABUS

CHM 145 General Chemistry II

CREDIT HOURS: 4.00 **CONTACT HOURS:** 60.00 HL / 30 HLB

COURSE DESCRIPTION:
This is the second lecture and laboratory course in a two-semester general chemistry sequence. It includes a study of chemical kinetics, chemical equilibrium, acid-base concepts, acid-base equilibria solubility and complexion equilibria, thermodynamics and electrochemistry (meets six hours per week; four hours lecture and two hours laboratory).

PREREQUISITES: *CHM136; Lab fee*

EXPECTED COMPETENCIES:
Upon successful completion of this course, the student will:

1. Utilizing vocabulary containing the following terms:

Catalyst	Reaction rate	Rate law
Rate constant	Reaction order	Half-life
Collision theory	Activation energy	Molecularity
Transition-state theory	Activation complex	Elementary reaction
Reaction intermediate	Unimolecular reaction	Bimolecular reaction
Termolecular reaction	Homogeneous catalyst	Chemisorption
Heterogeneous catalyst	Substrate	Chemical equilibrium
Homogeneous equilibrium	Heterogeneous equilibrium	Equilibrium constant
Law of mass action	Le Chatelier's principle	Reaction quotient

2. Determine the instantaneous rate of reaction.
3. Calculating the average rate of reaction.
4. Understanding the dependence of rate on concentration.
5. Be able to determine the reaction order.
6. Be able to determine the first and second-order rate laws from the initial rates.
7. Be able to determine the half-life reaction from the graph and the equation.
8. Be able to draw a graph from the given data.
9. Be able to understand the potential energy diagrams.
10. Be able to use Arrhenius equation.
11. Understand the rate equation.
12. Understand different rate laws.
13. Understand different catalysts and how they are effective.
14. Understand the chemical equilibrium and different equilibrium constants.
15. Heterogeneous and homogeneous equilibria.

16. How to quantitatively interpret the equilibrium constant.
17. How to predict the direction of a chemical reaction.
18. Be able to calculate the equilibrium concentrations.
19. Know the importance of removing products or adding reactants.
20. Understanding the effects of pressure, temperature and catalyst change in an equilibrium reaction.

ASSESSMENT METHODS:
Student performance may be assessed by examination, quizzes, case studies, oral conversation, group discussion, oral presentations. The instructor reserves the option to employ one or more of these assessment methods during the course.

GRADING SCALE:
90%-100% = A
80%-89.9%= B
70%-79.9%= C
60%-69.9%= D
<60% = E