

## COURSE SYLLABUS

- 1. Program of Study**  
**Faculty/Institute/College** Bachelor of Science (Chemistry)  
International College, Mahidol University
- 2. Course Code** ICCH 333  
**Course Title** Physical Chemistry I
- 3. Number of Credits** 4 (4-0-8) (Lecture/Lab/Self-study)
- 4. Prerequisite** ICCH 210
- 5. Type of Course** Required major courses
- 6. Semester / Academic Year** First trimester 2005-2006
- 7. Course Conditions** Number of students between 20-30
- 8. Course Description**  
Concepts of classical physical chemistry; behaviour of gases; First Law of thermodynamics, Second and Third Laws of thermodynamics; chemical equilibrium; phases and solutions; phase equilibria.
- 9. Course Objectives**  
After successful completion of this course, students should be able to
  - 9.1 understand the detailed concepts of physical chemistry;
  - 9.2 apply the concepts of thermodynamic and equilibria to reactions and their mechanisms;
  - 9.3 apply the concepts to enhance the understanding of other chemistry topics such as organic, inorganic and analytical chemistry.

## 10. Course Outlines

Week	Topics	Hour			Instructor
		Hour	Lab	Self-study	
1	Nature of physical chemistry	2	-	4	Dr. Supachai Supaluknari
2	Behaviour of gases	4	-	8	
3	Ideal gas laws	4	-	8	
4	Kinetic theory of ideal gases	4	-	8	
5	First law of thermodynamics	4	-	8	
6	Second law of thermodynamics	4	-	8	
7	Third law of thermodynamics	4	-	8	
8	Chemical equilibrium	4	-	8	
9	Chemical equilibrium	4	-	8	
10	Phases	4	-	8	
11	Phases and solutions	4	-	8	
12	Phase equilibria	2	-	4	
	Total	44	-	88	

## 11. Teaching Methods

- 11.1 Lecturing
- 11.2 Self-study
- 11.3 Group discussion and presentation

## 12. Teaching Media

Transparencies, handouts and lecturing from boards.

## 13. Measurement and evaluation of student achievement

Student achievement is measured and evaluated by

- 13.1 the ability in understanding the detailed concepts of physical chemistry;
- 13.2 the ability to apply the concepts of thermodynamic and equilibria to reactions and their mechanisms;
- 13.3 the ability to apply the concepts to enhance the understanding of other chemistry topics such as organic, inorganic and analytical chemistry.

Student's achievement will be graded according to the college and university standard using the symbols: A, B+, B, C+, C, D+, D and F. Students must attend at least 80% of the total class hours of this course.

Assessment made from the set-forward criteria: student who gets 85% and above will have Grade A.

- There will be homework assignments. The assignments will not have to be handed in or graded, but will be discussed periodically in class. Failure to do the homework or to discuss the assignments in class may affect the deliberation of the final Grade.
- A suggestive minimum of;
 

Midterm examination	40%
Final examination	50%
Quizzes	10%

#### 14. Course Evaluation

- 14.1 Students' achievement as indicated in number 13 above.
- 14.2 Students' satisfaction towards teaching and learning of the course using questionnaires.

#### 15. References

Levine, I.N. **Physical Chemistry** 5<sup>th</sup> Edition, USA: McGraw-Hill; 2003.

Atkins, P. and de Paula, J. **Atkins' Physical Chemistry** 7<sup>th</sup> Edition, UK: Oxford University Press; 2002.

#### 16. Instructors

Dr. Supachai Supaluknari

#### 17. Course Coordinator

Dr. Pakorn Bovonsombat

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