

COURSE SYLLABUS

1. **Name of Curriculum Faculty** Bachelor of Science (Chemistry)
International College, Mahidol University
2. **Course Code** ICCH 431
Course Title Advanced Physical Chemistry
3. **Number of Credits** 4 (4-0-8) (**Lecture/Lab/Self-study**)
4. **Prerequisites** ICCH 333 and 334
5. **Type of Course** Elective major course
6. **Semester / Academic Year:**
Second trimester 2006-2007
7. **Course Conditions:** Number of students between 20-30
8. **Course Description:**
A detailed study of certain specialised topics; solid state and liquid state, surface chemistry, colloids and transport properties.
9. **Course Objectives:**
After successful completion of this course, students should be able to
 - 9.1 understand detailed concepts of specialised topics of physical chemistry such as solid state and liquid state, surface chemistry, colloids and transport phenomenon;
 - 9.2 apply the concepts to the better understanding of nano phenomenon;
 - 9.3 apply concepts to research in physical chemistry.

10. Course Outline

Week	Topics	Hours			Instructor
		Lecture	Lab	Self-study	
1	Liquid state	2	-	4	TBA.
2	Liquid state	4	-	8	TBA.
3	Colloids	4	-	8	TBA.
4	Colloids	4	-	8	TBA.
5	Transport properties	4	-	8	TBA.
6	Transport properties	4	-	8	TBA.
7	Transport properties	4	-	8	TBA.
8	Solid state	4	-	8	TBA.
9	Solid state	4	-	8	TBA.
10	Surface of solids	4	-	8	TBA.
11	Surface chemistry	4	-	8	TBA.

12	Surface chemistry	2	-	4	TBA.
	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 detailed concepts of specialised topics of physical chemistry such as solid state and liquid state, surface chemistry, colloids and transport phenomenon;
- 13.2 the ability to apply the concepts to the better understanding of nano phenomenon;
- 13.3 the ability to apply concepts to research in physical 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** 5th Edition, USA: McGraw-Hill; 2003.

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

Levine, I.N. **Quantum Chemistry** 5th Edition, USA: McGraw-Hill; 2000.

Atkins, P. and Friedman, R. **Molecular Quantum Mechanics** 4th Edition, UK: Oxford University Press; 2005.

Albert Cotton, F. **Chemical Applications of Group Theory** 3rd Edition, USA: John Wiley & Sons; 1990.

Selected research papers from Journals (Journal of Physical Chemistry, Chemical Review etc.)

16. Instructors:

TBA.

17. Course Coordinator:

Dr. Pakorn Bovonsombat

Mahidol University International College, Mahidol University

Telephone: 02-4410595 ext. 1529

E-mail: icpakorn@mahidol.ac.th