

## COURSE SYLLABUS

1. **Program of Study** Bachelor of Science (Chemistry)  
**Faculty** International College, Mahidol University
2. **Course Code** ICCH 432  
**Course Title** Special Topics in Physical Chemistry
3. **Number of Credits** 2 (2-0-4) (**Lecture/Lab/Self-study**)
4. **Prerequisites** ICCH 334
5. **Type of Course** Elective major course
6. **Semester / Academic Year:**  
Third trimester 2006-2007
7. **Course Conditions:** Number of students between 20-30
8. **Course Description:**  
A detailed study of quantum chemistry and statistical thermodynamics.
9. **Course Objectives:**  
After successful completion of this course, students should be able to
  - 9.1 have a more detailed understanding of selected specialised topics of physical chemistry;
  - 9.2 understand the concepts and the technique of computational chemistry
  - 9.3 apply the concepts and techniques learnt to conduct research in physical chemistry.

### 10. Course Outline

Week	Topics	Hours			Instructor
		Lecture	Lab	Self-study	
1	Computational chemistry	2	-	4	Dr. Supachai Supaluknari
2	Computational chemistry	2	-	4	Dr. Supachai Supaluknari
3	Computational chemistry	2	-	4	Dr. Supachai Supaluknari
4	Solid state chemistry	2	-	4	Dr. Supachai Supaluknari
5	Computational chemistry	2	-	4	Dr. Supachai Supaluknari
6	Computational chemistry	2	-	4	Dr. Supachai Supaluknari

7	Computational chemistry	2	-	4	Dr. Supachai Supaluknari
8	Surface chemistry	2	-	4	Dr. Supachai Supaluknari
9	Surface chemistry	2	-	4	Dr. Supachai Supaluknari
10	Surface chemistry	2	-	4	Dr. Supachai Supaluknari
11	Surface chemistry	2	-	4	Dr. Supachai Supaluknari
12	Surface chemistry	2	-	4	Dr. Supachai Supaluknari
	<b>Total</b>	24	-	48	

#### 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 a more detailed understanding of selected specialised topics of physical chemistry;
- 13.2 the ability in understanding the concepts and the technique of computational chemistry;
- 13.3 the ability to apply the concepts and techniques learnt to conduct 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.

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.

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

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

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

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

**16. Instructors:**

Dr. Supachai Supaluknari

**17. Course Coordinator:**

Dr. Pakorn Bovonsombat

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