

COURSE SYLLABUS

1. **Program of Study** Bachelor of Science (Chemistry)
Faculty/Institute/College International College, Mahidol University
2. **Course Code** ICCH 329
Course Title Integrated Laboratory Techniques in Chemistry II
3. **Number of Credits** 2 (0-4-2) (Lecture/Lab/Self-study)
4. **Prerequisite** None
5. **Type of Course** Required major courses
6. **Semester / Academic Year** Third trimester 2005-2006
7. **Course Conditions** Number of students between 20-30
8. **Course Description**
Laboratory practicals for analytical chemistry and physical chemistry.
9. **Course Objectives:**
After successful completion of this course, students should be able to
 - 9.1 possess laboratory skills in analytical, inorganic and physical chemistry;
 - 9.2 possess skills to identify and purify compounds;
 - 9.3 apply the laboratory skills to research.

10. Course Outline

Week	Topics	Hours			Instructor
		Lecture	Lab	Self-study	
1	Safety, Analysis for Ag ⁺ , Zn ²⁺ , cd ²⁺ , Hg ²⁺	1	3	5	Dr. Supachai
2	Analysis for Ag ⁺ , Zn ²⁺ , cd ²⁺ , Hg ²⁺	-	1	1	
3	Iron and cobalt analysis	-	4	2	
4	Analysis of a complex iron salt	-	4	2	
5	Redox titration of Ferrous ion with ceric ion	-	4	2	
6	Synthesis of coordination isomers	-	4	2	
7	Colligative properties	-	4	2	
8	Solution of electrolytes	-	4	2	
9	Electrochemical cells	-	4	2	
10	Kinetics	-	4	2	
11	Thermodynamics	-	4	2	
12	Thermodynamics	-	4	2	
	Total	1	44	24	

11. Teaching Methods

- 11.1 Practical exercises
- 11.2 Lecturing
- 11.3 Self-study, 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 to display laboratory skills in analytical, inorganic and physical chemistry;
- 13.2 the ability to display skills in identifying and purifying compounds;
- 13.3 the ability to apply the laboratory skills to research.

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 minimum of;

Midterm examination	30%
Final examination	40%
Lab reports	30%

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

Garland, C.W., Nibler, J.W. and Shoemaker, D.P. **Experiments in Physical Chemistry**, 7th Edition, USA: McGraw-Hill; 2003.

Sienko, M.J., Plane, R.A. and Marcus, S.T. **Experimental Chemistry**, 6th Edition, USA: McGraw-Hill; 1985.

16. Instructors

Dr. Supachai

17. Course Coordinator

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