

COURSE SYLLABUS

- 1. Program of Study Faculty** Bachelor of Science (Chemistry)
International College, Mahidol University
- 2. Course Code** ICCH 224
Course Title Integrated Laboratory Techniques in Chemistry I
- 3. Number of Credits** 2(0-4-2) (Lecture/Lab/Self-study)
- 4. Prerequisite** ICCH 210 and ICCH 221
- 5. Type of Course** Required major course
- 6. Semester / Academic Year** Third trimester 2004-2005
- 7. Course Conditions** Number of students between 20-30
- 8. Course Description**
Laboratory practicals for general chemistry and organic chemistry with inorganic and organic unknown determination included as end of course final practical.
- 9. Course Objectives:**
After successful completion of this course, students should be able to
 - 9.1 possess laboratory skills in general and organic chemistry;
 - 9.2 possess skills to separate and purify compounds;
 - 9.3 apply the laboratory skills to research.

10. Course Outline

Week	Topics	Hours			Instructor
		Lecture	Lab	Self-study	
1	Safety, Measurements	2	2	5	Dr. Pakorn Bovonsombat
2	Elements, compounds, mixtures	0	4	2	
3	Elements, compounds, mixtures	0	4	2	
4	Titrations	0	4	2	
5	Acids, bases, pH	0	4	2	
6	Distillation	0	4	2	
7	Crystallisation	0	4	2	
8	Melting point, Extractions	0	4	2	
9	Organic qualitative analysis	0	4	2	
10	Chromatography	0	4	2	
11	IR, NMR, Mass spectrometry	2	2	5	
12	Unknowns		4	2	
	Total	4	44	30	

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 in general and organic chemistry laboratory skills;
- 13.2 the ability to separate and purify 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 suggestive 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

Vollhardt, K.P.C. and Schore, N.E. **Organic Chemistry Structure and Function** 5th Edition USA: W.H. Freeman and Company; 2007.

Louis F. Fieser, L.F. and Williamson, K.L. **Organic Experiments**, 6th Edition, USA: D.C. Heath and Company; 1987.

Murov, S. and Stedjee, B. **Experiments in Basic Chemistry**, USA: John Wiley & Sons; 1985.

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

16. Instructors

Dr. Pakorn Bovonsombat

17. Course Coordinator

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