COURSE SYLLABUS

1. **Program of Study** Bachelor of Science (Chemistry)
   Faculty International College, Mahidol University

2. **Course Code** ICCH 421
   Course Title Physical Organic Chemistry

3. **Number of Credits** 4 (4-0-8) **(Lecture/Lab/Self-study)**

4. **Prerequisites** ICCH 222

5. **Type of Course** Elective major course

6. **Semester / Academic Year** Second trimester 2006-2007

7. **Conditions** Number of students between 20-30

8. **Course Description**:
   A study of organic chemistry via mechanistic approach; aliphatic nucleophilic substitution reactions; aromatic electrophilic reactions; aromatic nucleophilic substitutions; photochemistry.

9. **Course Objectives**:
   After successful completion of this course, students should be able to
   9.1 understand the concepts of mechanistic organic chemistry;
   9.2 apply the concepts and predict the outcome of organic reactions;
   9.3 apply the comcepts to research in organic chemistry.

10. Course Outline

Week	Topics	Hours			Instructor
		Lecture	Lab	Self-study	
1	Fundamentals of physical organic chemistry	2	-	4	Dr. Pakorn Bovonsombat
2	Fundamentals of physical organic chemistry	4	-	8	
3	Acids and bases	4	-	8	
4	Aliphatic nucleophilic substitution	4	-	8	
5	Aromatic nucleophilic substitution	4	-	8	
6	Aliphatic electrophilic substitution	4	-	8	

7	Aromatic substitutions	4	-	8	
8	Aromatic Halogenations	4	-	8	
9	Aromatic Halogenations	4	-	8	
10	Photochemistry	4	-	8	
11	Photochemistry	4	-	8	
12	Photochemistry	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 concepts of mechanistic organic chemistry;
    13.2 the ability to apply the concepts and predict the outcome of organic reactions;
    13.3 the ability to apply the comcepts to research in organic 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 minimum of;

Midterm examination	40%
Final examination	50%
Class discussion and participation	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**:

Smith, M.B. and March, J. **Advanced Organic Chemistry; Reactions, Mechanisms and Structure**, 6th Edition, USA: Wiley-Interscience; 2007.

Carey, F.A. and Sundberg, R.J. **Advanced Organic Chemistry; Part A Structure and mechanisms**, 4th Edition, USA: Plenum Publishers, 2000.

Carey, F.A. and Sundberg, R.J, **Advanced Organic Chemistry; Part B Reaction and Synthesis**, 4th Edition, USA: Plenum Publishers; 2000.

Lowry, T.H. and Schueller Richardson, K. **Mechanism and Theory in Organic Chemistry**, 3rd Edition, USA: Addison-Wesley; 1997.

16. Instructors:
Dr. Pakorn Bovonsombat

17. Course Coordinator:
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