COURSE SYLLABUS

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

2. **Course Code** ICCH 452
   Course Title Polymer science and technology

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

4. **Prerequisite** ICCH 222

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**:
   Introduction to polymers, syntheses, applications and implications to industry of polymers: introduction of polymers; polymerization reactions; the structures and properties of polymers; polymer processing; common polymers and their applications.

9. **Course Objectives**:
   After successful completion of this course, students should be able to
   9.1 understand the concepts of polymer science;
   9.2 apply chemical knowledge to the science of polymers;
   9.3 apply knowledge and chemical know-how to polymer research.

10. Course Outline

Week	Topics	Hours			Instructor
		Lecture	Lab	Self-study	
1	Introduction and overview of industry	2	-	4	TBA
2	Structures of polymers	4	-	8	TBA
3	Properties of polymers	4	-	8	TBA
4	Polymerisation reactions	4	-	8	TBA
5	Production of polymers	4	-	8	TBA
6	Polymer processing	4	-	8	TBA
7	Polymer processing	4	-	8	TBA
8	Co-polymers	4	-	8	TBA
9	Synthesis of co-polymers	4	-	8	TBA
10	Common polymers	4	-	8	TBA

11	Applications	4	-	8	TBA
12	Applications	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 the concepts of polymer science;
    13.2 the ability to apply chemical knowledge to the science of polymers;
    13.3 the ability to apply knowledge and chemical know-how to polymer research.
    Student's achievement will be graded according to the college and univeristy 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 50%
    Class 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**:

    Hans-Georg Elias, An Introduction to Plastics, 1st Edition, VCH, New York, 1993.

    Andrew Streitweiser; Clayton H. Heathcock; Edward M. Kosower, Introduction to Organic Chemistry 4th Edition, MacMillan, New York, 1992.

    Robert T. Morrison; Robert N. Boyd; Robert K. Boyd, Organic Chemistry, 6th Edition, Addison-Wesley, New York, 1992.

16. Instructors:
    TBA

17. Course Coordinator:

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