Course Syllabus

1. **Name of Curriculum** Bachelor of Science Program in Environment
   Faculty/Institute/College Mahidol University International College, Faculty of Science, Faculty of Environment and Resource Studies, Mahidol University
2. **Course Code** ICEN 313 **Course Title** Waste Minimization and Cleaner Technology
3. **Number of Credits** 4 **(Lecture/Lab)** (4-0)
4. **Prerequisite** None
5. **Type of Course** Elective
6. **Trimester / Academic Year**
   Second / 2004
7. **Course Description**
   Study of the reduction or elimination of waste production. Emphasis on reduction in pollution at source, also involves the changes of procedure, technology and material input. Considering in the production of an economically production process. The significant and application of waste minimization or cleaner technology.
8. **Course Objectives**
   - Understand the principles of waste minimization / cleaner technology
   - Understand the application of waste minimization / cleaner technology
9. **Course Outline**

Week	Topic				Instructor
	Lecture/Seminar	Hour	Lab	Hour	
1	Waste Minimization and Cleaner Technology Overview	4	-	-	Bundit Channarong
2	Planning and Organization	4	-	-	Bundit Channarong
3	Assessment Phase	4	-	-	Bundit Channarong
4	Feasibility Analysis	4	-	-	Bundit Channarong
5	Implementation	4	-	-	Bundit Channarong
6	Measuring of Waste Minimization and Cleaner Technology program	4	-	-	Bundit Channarong
7	Waste Minimization and Cleaner Technology for Small Generator	4	-	-	Bundit Channarong
8	Waste Minimization and Cleaner Technology in Private Sector Activities	4	-	-	Bundit Channarong
9	Case Studies in Food Industry	4	-	-	Bundit Channarong
10	Case Studies in Non-food Industry	4	-	-	Bundit Channarong
11	Report Presentation	4	-	-	Bundit Channarong
	Total	**44**			

10. **Teaching Method**
    1. Lecture
    2. Discussion
    3. Self-Study and Report Presentation

11. Teaching Media

1. Texts and Teaching Materials
2. Transparencies
3. Power Point Presentation

12. Course Achievement

Assessment made from the set-forward criteria. Student who gets 85% up, will have Grade A.

13. Course Evaluation

1. Report 10%
2. Presentation 10%
3. Examination 80%

14. References

1. Cheremisinoff PN. Waste minimization and cost reduction for the process industries. New Jersey: Noyes Publications; 1995.
2. Freeman HM. Hazardous waste minimization. Singapore: McGraw-Hill; 1990.
3. Kirkwood RC, Longley AJ, editors. Clean technology and the environment. Glasgow: Blackie Academic & Professional; 1995.

15. Instructor

Lectuer Bundit Channarong

16. Course Coordinator

Lectuer Bundit Channarong