

## 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 461 **Course Title** Energy Conservation and Development
3. **Number of Credits** 4 **(Lecture/Lab)** (4-0)
4. **Prerequisite** None
5. **Type of Course** Elective
6. **Trimester / Academic Year**  
Second / 2005
7. **Course Description**

World and local energy situation. Energy policies and strategies. The Relationship between energy, the environment and the economy. Renewable resources and social energy requirements. Conservation, substitution and technology options. Integrated energy management system.

### 8. Course Objectives

1. To describe the principles and techniques used in energy conservation and development.
2. To describe the principles of efficient energy usage in residential, commercial and industrial sectors.

### 9. Course Outline

Week	Topic				Instructor
	Lecture/Seminar	Hour	Lab	Hour	
1	Introduction: energy and the environment, energy and development, energy demand and supply, energy sources and production	4	-		Dr. Vimut Prasertpun
2	Pattern of energy used in domestic, agricultural and industrial production, commercial and service sectors	4	-		Dr. Vimut Prasertpun
3	Energy conservation and efficient use of energy	4	-		Dr. Vimut Prasertpun
4	Energy Inefficiency	4	-		Dr. Vimut Prasertpun
5	Clean energy and alternatives sources of energy: wind, solar and	4	-		Dr. Vimut Prasertpun
6	PV, hydroelectric, bio-fuels, bio-diesel, ethanol, ester	4	-		Dr. Vimut Prasertpun
7	Green architecture and green city	4	-		Dr. Vimut Prasertpun
8	Energy technology	4	-		Dr. Vimut Prasertpun
9	Value engineering and management	4	-		Dr. Vimut Prasertpun
10	Energy economic decision making	4	-		Dr. Vimut Prasertpun
11	Energy management and	4	-		Dr. Vimut Prasertpun

	conservation: steps in energy management				
	<b>Total</b>	<b>44</b>			

**10. Teaching Method**

1. Lecture
2. Practical Exercises
3. Discussion
4. Quiz
5. Self-Study

**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. Exercises 10%
2. Oral Presentation 10%
3. midterm Examination 40%
4. Final Examination 40%

**14. References**

1. Kleindorfer, P et al (Eds.) *Energy, Environment, and the economy : Asian perspectives*. Cheltenham, UK : Edward Elgar. 1996.
2. Leitmann, J. *Energy-environment linkages in the urban sector*. Washington, D.C. : World Bank. 1991.
3. O'Callaghan, Paul W. *Energy management*. London:McGraw-Hill. 1993.
4. Olivier, D. *Energy-efficient futures : opening the Solar option*. London : Earth Resources Research. 1983.
5. Patrick, D. and Fardo, S. *Energy management and conservation*. Englewood Cliffs, N.J. : [s.n.]. 1982.
6. Priest, J. *Energy : principles, problems, alternatives*. 4th ed. Reading, Mass. : Addison-Wesley Pub. co. 1991.
7. Thai-Denish Cooperation on Sustainable Energy. *The International Conference on energy sector in transition : Asian perspective for sustainable energy development*. Nakhon Ratchasima : Thai-Danish Cooperation on Sustainable Energy. 2000.
8. World Energy Council. *Energy for tomorrow's world-acting now! : WEC statement 2000*. London : The Council. 2000.

**15. Instructor**

Dr. Vimut Prasertpun

**16. Course Coordinator**

Dr. Vimut Prasertpun