

SYLLABUS

Course Number and Title: M2794.003400 Optimal Design of Energy Systems (최적에너지시스템설계)							
Credit	Provided by	Professor					
		Title	Name	e-mail			
3	Dept. of Mechanical and Aerospace Eng.		KIM, Min Soo	minskim@snu.ac.kr			
Attachment (Korean)				Attachment (English)			
Prerequisite Course							
1. Purpose of Course	Energy systems to generate power and heat are widely investigated by understanding basic principles of thermodynamics, fluid mechanics, heat transfer etc. Performance enhancement is treated by system design change and optimization after modeling the system components and their integration. At the same time, optimal operation strategy will be studied. Diverse optimization methods will be dealt with.						
2. Materials and Reference	Design of Thermal Systems, 3rd Ed.-W. F. Stoecker-McGraw-Hill-1989						
3. Evaluation Method	Attendance(%)	Task(%)	Final Exam.(%)	Random Evaluation(%)	Attitude(%)	Other(%)	Total(%)
	0%	10%	40%	0%	0%	10%	100%
Other Remarks :							
4. Lecture Plan	(English)	[ 1 Week ] Introduction, Description of energy systems [ 2 Week ] Basic system design, Cost estimation [ 3 Week ] Basic modeling of energy systems [ 4 Week ] Component design (1) [ 5 Week ] Component design (2) [ 6 Week ] Steady state simulation [ 7 Week ] Optimization of system performance (Lagrange method) [ 8 Week ] Optimization of system performance (Search method), Mid term examination [ 9 Week ] Optimization of system performance (Dynamic programming) [ 10 Week ] Optimization of system performance (Geometric programming) [ 11 Week ] Optimization of system performance (Linear programming) [ 12 Week ] Dynamic modeling of energy systems [ 13 Week ] Unsteady state simulation, Control of energy systems [ 14 Week ] Presentation of term projects [ 15 Week ] Final wrap-up, Final examination					
5. References to Course Registration							