

Syllabus

(Year 2008 Semester 1)

Course Title	Optimal Design		School	Mechanical and Aerospace Engineering	
Course No	446.427A			Credit	3
Lecturer	Yoon Young Kim	e-mail	yykim@snu.ac.kr	Phone	880-7154
Website	http://idealab.snu.ac.kr				
Recommended to	Mech. and Aero. Eng. 3-4 Grade		Prerequisite	Engineering Mathematics	
Time	T, Th 10:15-11:45		Lecture Room	Building 301 Room 303	
TA	I. K. Lee	plee219@idealab.snu.ac.kr	Office Hour	T, Th 11:45-12:15 (or appointment)	
Goal	Engineers always dream to design better and new products. Because there are many constraints in actual design, it is nearly impossible to find an optimal design without a systematic design method. The objective of this course is to provide students with underlying optimal design concepts and various optimization methods.				
Overview	The underlying optimization concepts such as convexity, linear and nonlinear mathematical programming methods, response surface methods and application strategies of optimization methods to practical problems will be studied. A simple but insightful design project will be carried out to grasp how optimization methods are applied to realistic design cases.				
Area of the contributive of the course	Design Area				
Textbook and References	Textbook	No Single Textbook; A booklet of Handouts will be used.			
	reference s	<ul style="list-style-type: none"> - P. Venkataraman, "Applied Optimization with MATLAB Programming," 2002, Wiley Interscience. - A. D. Belegundo, T. R. Chandrupatla, OPTIMIZATION CONCEPTS and APPLICATIONS in ENGINEERING, 1999, Prentice-Hall - D. G. Luenberger, "Linear and Nonlinear Programming," 1989, Addison Wesley. - J. S. Arora, "Introduction to Optimal Design," 1989, McGraw-Hill. - R. T. Hafta and Z. Gurdal, "Elements of Structural Optimization," 3rd revised and expanded edition, 1992, Klumer Academic. - Ecker and Kupferschmind, "Introduction to Operations Research," 1991, Krieger. - R. H. Myers and D. C. Montgomery, "Response Surface Methodology," 2002, Wiley. 			
Class Composition	Lecture (80%), Student Participation (20%) (Lectures will be given in English.)				
Evaluation	Tentative: Midterm (23%), Final(32%), Term Project (22%), Homework (15%), Quiz (5%), attendance (5%)				