

Course No.	M2794.007700	Lecture No.	001	Course Title (Subtitle)	Smart Materials and Design	Credit	3	
Representative Instructor	Name	Sung-Hoon Ahn (post : Professor)			Homepage	fab.snu.ac.kr		
	E-mail	ahnsh@snu.ac.kr			Phone No.	02-880-6360		
	Class Time/Place : Tuesday and Thursday 14:00~15:15, Building 301, Room 204							
Attachment	(Korean)							
	(English)							
Prerequisite Course	No prerequisites							
*1.Purpose of Course	In this class, fundamental issues in composite, shape memory materials, and electroactive polymer will be covered as well as applications of these materials in analysis, design and manufacturing. A group project will be assigned to encourage hand-on experience on these smart materials using knowledge of fundamental theory and manufacturing processes.							
*2.Materials and Reference	1) Issac M. Daniel, "Engineering Mechanics of Composite Materials" 2) Ronald F. Gibson, "Principles of Composite Material Mechanics", McGraw-Hill 3) Y. C. Fung, "Foundations of Solid Mechanics", Prentice-Hall 4) Dimitris C. Lagoudas, "Shape Memory Alloys", Springer 5) K. Otsuka and C. M. Wayman, "Shape Memory Materials", Cambridge 6) Kwang J. Kim and Satoshi Tadokoro, "Electroactive Polymers for Robotic Applications", Springer							
*3.Evaluation Method	Attendance	Task	Medium	Final	Random Evaluation	Attitude	Other	Total
	20%	20%	0	0	0	0	60%	100%
	Remark of Others		Project presentation: 1 st : 10%, 2 nd : 15%, 3 rd : 15%, 4 th : 20%					
*4.Lecture Plan	강의내용							
	주							
	1	Introduction to the class						
	2	Introduction to composites; Review of stress and strain						
	3	Stress and strain in anisotropic material						
	4	1 st group meeting, 1 st presentation						
	5	Laminate theory, invited						
	6	Hygrothermal effects, manufacturing and joining						
	7	Nanocomposites and green composites						
	8	2 nd group meeting, 2 nd presentation						
	9	Intro to smart materials						
	10	Shape memory alloy: basics						
	11	Shape memory alloy: applications						
	12	3 rd group meeting, 3 rd presentation						
	13	Electro active polymers						
	14	Piezoelectric actuators						
15	4 th group meeting; 4 th presentation							
5.References to Course Registration	The class is given entirely in English							