Course Number		Lecture Number		Course Title (Subtitle)	Advanced Dynamics	Credits	3
Instructor	Name	Ji-Hwan Kim	Position	Professor	Homepage	http://odyssey.snu.ac.kr	
	E-mail	jwhkim@snu.ac.kr			Tel.	+82-2-880-7383	
	Consult Time & Place	Tue,Thur : pm 3:30-5:00 Room: 301-301					
Prerequisites courses	Dynamics						

* 1. Goals	Using generalized coordinate system, systematic approach is to develope governing equations for dynamic systems. Generally, forces are classified into conservative or non-conservative types. Especilly, conservative force is suitable to derive the potental energy functional, while dynamic behaivor of a system is to derive kinetic energy. Furthermore, concept of calculus of variation is introduced to explain the mini-max principle.							
* 2. Texts and References	JOSEF S. TOROK, **Analytical Mechanics** with an Introduction to Dynamical systems							
* 3. Evaluation	Attendance	Assignment	Mid-term	Final	Quiz	Class Partcipation	Others	Total
	10 %	15 %	20 %	20 %	20 %	10 %	5 %	100 %
	Remarks :							

* 4. Lecture Plan	Lecture Contents	
	Week	
	1	Mechanics, Basic Principles of Mechanics, Kinematics
	2	Coordinate Transformations, Time Rate of Change of a Unit Vector,Work & Energy
	3	Conservative Systems, Systems of Paticles, Motion in Noinertial Reference Frames
	4	Planar motion of Rigid Bodies, Virtual Work, Holonomic Systems
	5	Kinetic Energy and Generalized Momenta, Generalized Force
	6	Lagrange's Equations of Motion, Conservqtive Systems, Lagrangian Systems
	7	Dissipative Sytems, Electromechanical Analogies, **MID EXAM (Chapter 1,2)**
	8	Extrema of Functions, Necessary Conditions for an Extremum
	9	Special Cases of the Euler-Lagrange Equation, The Variational Operator
	10	Generalizations, Several Independent Variables
	11	Variational problems with constraints, Hamilton's Principle
	12	Kinematics of Rotating Bodies, Motion Relative to Moving Axes
	13	The Inertia Tensor, Translation Theorem for Angular Momentum
	14	Equations of Motion for a Rigid Body, Euler's Equations of Rotating Body Motion
	15	**FINAL EXAM (Chapter 3,4)**

5. Guideline for students	Home works for each section