

Syllabus

(Spring, 2019)

Course	Advanced Thermodynamics		Dept	Mechanical & Aerospace Eng.	
Course #	M2794.007900	Section	001		Credits
Professor	Min Soo Kim	Tel	02-880-8362	e-mail	minskim@snu.ac.kr
Course homepage	http://reflab.snu.ac.kr/				
For	Graduate Students		Prerequisite	Thermodynamics, Fluid mechanics	
Lecture time	Tue, Thu 14:00-15:15		Classroom	301 - 105	
TA	Hong Won Choi (hongone90@snu.ac.kr)		Office hours	Tue, Thu 10:00-14:00	
Course Aim	<p>In this course, students will learn the fundamentals and applications of statistical thermodynamics, starting with a review of the fundamentals of classical thermodynamics. This course deals with the basic concepts and formulation of statistical thermodynamics, which are applied to gases, solids, and liquids, and predicts equilibrium and non-equilibrium properties of materials.</p>				
Introduction	<p>This course will extend the knowledge on classical thermodynamics to the graduate level and also introduce the fundamentals of statistical thermodynamics. We will examine macroscopic thermodynamic phenomena, analyze them in terms of both macroscopic and microscopic quantities and understand the relationship between them. Other tasks include the following: the reformulation of the basic principles of thermodynamics; the review of classical kinetic theory; working out the solutions of the Schrodinger equation for the modes of translation, rotation, vibration and others; application of these results to various cases; developing calculation methods for thermodynamic properties of gases and solids. This course will also provide a brief introduction to the principles and examples of irreversible processes.</p>				
Applications	<p>The students will gain fundamental and practical thermodynamics knowledge which will prepare them for analyzing various types of thermal systems.</p>				
Text	Text	Ashley H. Carter, <i>Classical and Statistical Thermodynamics</i> , Pearson.			
	Reference				
Instruction	Lecture and Discussion (100%)				
Grading	Assignments (10%), Midterm Exam (40%), Final Exam (40%), Others (10%)				