

DEPARTMENT OF MATERIALS SCIENCE AND ENGINEERING
KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY

Thermodynamics of Materials (MS212)

Spring Term 2014

This course guides students to understand thermodynamic behaviors of materials systems. Students will learn the laws of thermodynamics and their application to equilibrium and the properties of materials. Statistical interpretation of thermodynamic properties and basic concept of phase diagrams will also be covered.

Instructor:

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TA:

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Class Hours:

Tuesday, Thursday (Rm 2427, W1; 14:30 – 15:45)

Office Hours:

Monday, Wednesday (Rm 2406, W1-1: 13:30 – 15:30)

Web site:

<http://www.wjunggroup.com/#!lecture/cgub>

Grade Calculation:

Attendance	10%
Homework	10%
Quiz1 (04/10)	20%
Quiz2 (05/20)	20%
Final exam (06/17)	40%

Text Book:

Introduction to the Thermodynamics of Materials (5th Ed., DavidR.Gaskell, 2008)

Course Schedule:

Week	Topic	Readings
1	General Introduction and Definition of Terms	Chap. 1
2	The 1 st Law of Thermodynamics	Chap. 2
3	The 2 nd Law of Thermodynamics	Chap. 3
4	The Statistical Interpretation of Entropy	Chap. 4
5	Auxiliary Functions	Chap. 5
6	Review Chap1-5 (04/08), Quiz1 (04/10)	Chap. 1-5
7	Heat Capacity, Enthalpy, Entropy	Chap. 6
8	No Class (Mid-term Period)	
9	Phase Equilibrium in a One-Component System	Chap. 7
10	No Class (05/06), The Behavior of Gases	Chap. 8
11	The Behavior of Gases, Review Chap6-8 (05/15)	Chap. 8
12	Quiz2 (05/20), The Behavior of Solutions	Chap. 6-8
13	The Behavior of Solutions	Chap. 9
14	Gibbs Free Energy Composition and Phase Diagrams	Chap. 10
15	Gibbs Free Energy Composition and Phase Diagrams	Chap. 10
16	Final Exam (6/17)	Chap. 1-10

No Class on the Following Dates:

04/22, 04/24 (Mid-term Period)
05/06 (Buddha's Birthday)

Last Day of Class:

06/12 (Last Class), 06/17 (Final Exam)