Lecture 19

Tuesday, May 13, 2008
10:10 PM

Ref: 1. Reed-Hill, Abbaschian,**_Physical Metallurgy Principles, 3rd Edition_**, *PWS Publishing Company*, 1994.

Course Notes:

- ○ Exam 2 is next Monday:
    - – Like last time -- you will be allowed to bring in a single 4 x 6 card with equations and constants (Only)
    - – Like last time -- you will be stapling your equation card to your test when you turn it in
    - – It will cover the material from the last exam through today.
    - – We have covered material which appears in chapters 6, 7, 9, 10 (of your books) since the last exam.
    - – I will not test you on Chapter 11 material in this exam.
- ○ Homework is due Today

Review:
- ○ We looked at the hypoeutectoid steel phase transformations -- specifically, as we cool through the 2 phase $\alpha + \gamma$ field , proeutectoid ferrite forms
- ○ We looked at the hypereutectoid steel phase transformations -- specifically , as we cool through the 2 phase field $\gamma + Fe_3C$, proeutectoid cementite forms
- ○ We then started our discussion of phase transformations defining 3 types:
    1. Diffusion dependent in which there is no change in the number or composition of the phases present
    2. Diffusion dependent in which there is a change in the number and/or composition of phases present
    3. Diffusionless transformations.
- ○ We discussed solidification defining Homogenous and Heterogeneous nucleation and growth
- ○ We went through the thermodynamics of these two phenomena
- ○ We then switched our discussion to Kinetics of phase transformation -- specifically looking at the Avrami equation, which was developed to model pearlite transformations.
    And that's where we left off...

Rest of Lecture is available in PowerPoint Presentation Paired with Lecture 19