MT208 Aug. 3:0

Diffusion in Solids

Instructor
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Teaching Assistant

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Department: Materials Engineering
Course Time: Tue., Thu., 9:00-10:30 AM
Lecture venue: Class room (Department of Materials Engineering)
Detailed Course Page:

Announcements

Brief description of the course
This course introduces the basics of solid state diffusion related covering thermodynamics, defects, microstructure and growth kinetics of the phases in an inhomogeneous material system.

Prerequisites
Basics if materials science

Syllabus
Thermodynamics related to phase diagrams, driving forces and defects, Fick's laws of diffusion and solutions, concept of different types of diffusion coefficients, atomic mechanism of diffusion, growth kinetics, the Kirkendall effect, Darken analysis, stable, unstable and multiple Kirkendall planes, role of the Kirkendall effect on morphogenesis, physicochemical approach, multicomponent diffusion.

Course outcomes
Diffusion-controlled phase transformation and microstructural evolution in inhomogeneous material systems

Grading policy
40% mid-terms (2)
60% final exam
Assignments

Resources