



Thermodynamics of Materials

MATSCEN 6730

Credit Hours:

3.00 - 3.00

Course Levels:

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

Thermodynamics of mixtures and phase equilibria relevant to metallurgy and materials science.

Prerequisites and Co-requisites:

Prereq: Grad standing or permission of instructor.

Course Goals / Objectives:

- Ability to assess available methods for fundamental and applied research
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Course Topics:

- Introduction & the 1st, 2nd, & 3rd laws of thermodynamics
 - Thermodynamic variables and relations
 - Statistical thermodynamics
 - Thermodynamic equilibria in unary systems
 - Multicomponent solution thermodynamics
 - Thermodynamics of phase diagrams
 - Chemical reaction equilibria
 - Thermodynamics of surfaces and interfaces
 - Thermodynamics of defects in crystals
 - Thermodynamics of electrochemistry
 - Thermodynamics of diffusion and phase transformations
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Designation:

Elective

Required