



THE OHIO STATE UNIVERSITY
COLLEGE OF ENGINEERING

Structural Transformations

MATSCEN 7850

Credit Hours:

2.00 - 2.00

Course Levels:

Graduate (5000-8000 level)

Course Components:

Lecture

Course Description:

Structural transformations in materials with emphasis on basic phenomena. Selected topics will be developed based on classical approaches and recent advances.

Prerequisites and Co-requisites:

Prereq: 6730 and 6737.

Course Goals / Objectives:

- Provide fundamental knowledge of Structural Transformations

Course Topics:

- Introduction and classification of phase transformations
- Phase stability
- Order-disorder transformations
- Spinodal decomposition and continuous ordering
- Precipitation from solid solutions (nucleation, growth and coarsening)
- Coherency elastic strain and coherency transformations
- Martensitic transformations and dislocation dynamics
- Massive transformations, recrystallization and grain growth
- Computational thermodynamics and kinetics of phase transformations

Designation:

Elective