Course Outline

• Title : Elasticity (彈性力學)
• Type : Required for graduate students
• Credit : 3
• Prerequisite : Physics, Calculus, Engineering Mechanics, Engineering Mathematics
• Lecturer : Chung Fang
• Description : Elasticity a fundamental course of engineering mechanics, in which the framework of mathematical theory of an elastic body and its applications are delineated. Some basic problems of linear elastic materials are formulated and solution approaches introduced. The course is essential to the students in the field of solid mechanics, geomechanics, and material engineering.

• Contents :
  1. Mathematical Prerequisites: Tensor Notations
  2. Analysis of Stress: Stress Tensor
  3. Analysis of Strain: Strain Tensor
  4. Constitutive Equations for Linear Elastic Materials; Generalized Hooke’s Law
  5. Some Elementary Problems of Elasticity
  6. Two-dimensional Problems: Plain Strain; plane Stress; Stress Function Approach; Complex Variable Approach
  7. Classical Principles of Elasticity and Variational Approach

• Textbook & References :
  5. “Theory of Elasticity of an Anisotropic Body”, by S. G. Lekhnitskii,
Mir, Moscow, 1985


• Grading Policy:
  - 1st Midterm exam: 25%
  - 2nd Midterm exam: 35%
  - Final exam: 40%

• Office hour: AM 10:00 – 12:00, Friday, Room 47248, CE Department

• Advanced Courses:
  - Continuum Mechanics
  - Anisotropic Elasticity
  - Fracture Mechanics
  - Earth Materials