# EN221: Foundations of Continuum Mechanics

**Instructor:**

Prof. V. B. Shenoy
604 Barus and Holley
Phone: 863-1475  E-mail: Vivek_Shenoy@brown.edu
Office Hours: Tuesday 3:30-5:00 or by appointment

**Grader:**

Viswanath Chinthapenta
Phone: 573-4579
Viswanath_Chinthapenta@brown.edu

**Course Web-site:**

http://www.engin.brown.edu/Courses/Engn2210/

**Textbooks (Required):**

1. P. Chadwick, *Continuum Mechanics*, 2nd Edition, Dover (1999).
2. R. W. Ogden *Non-Linear Elastic Deformations*, Dover (1997). Chapters 1-4 and parts of the rest of the book will be covered.

**Supplementary Reading:**

1. L. E. Malvern, *Introduction to the mechanics of a continuous medium*, Prentice-Hall (1967).
2. M. E. Gurtin, *An introduction to continuum mechanics*, Academic Press (1981).
3. G. A. Holzapfel, *Nonlinear solid mechanics*, John Wiley (2000).

**Main Topics:**

1. Tensor theory, Integral theorems applied to tensor fields
2. Kinematics of motion and deformation
3. Balance laws and field equations
4. Constitutive equations

**Grading:**

Homework  (10 Sets) – 60 % (Homework sets are due in class on Wednesdays. No late homework sets will be accepted)

Final Exam – 40 % (details to be announced in November)