ME 553 ADHESION MECHANICS

Spring Quarter 2012

Class Location: Rm 202, Loew Hall
Lectures Day/Times: Mon, Wed 11:00am-12:20pm
Course Website: http://courses.washington.edu/mengr553

Instructor: Prof. M. E. Tuttle
Office: 210 MEB
Office Telephone: 206-543-5710
Office Hours: Mon, Wed: 1:30 - 2:30 PM (or by appointment)
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Textbook: None required. Throughout the quarter students will be directed to download reading materials from the course website and/or from the broader www.

In the past years I have tried the following as the course textbook:


Of these three I prefer the Kinloch text because it provides broad coverage of "adhesion mechanics" and includes an extensive list of references. Unfortunately, the Kinloch text has become too expensive (> $285 new), and is becoming a little dated. Still, if you want an “adhesion” textbook for your personal library I recommend the Kinloch text.

Topics:

a) Brief Introduction to the Atomic/Molecular Nature of Polymers
b) Surface Wetting Criterion
c) Theories of Adhesion
d) Surface Pretreatments
e) Modern Adhesive Systems
f) Adhesive Test Methods
g) Mechanical Analysis of Bonded Joints
h) Fracture Mechanics of Bonded Joints

Homework Submission:

(a) On-campus students: submit hard copies, either in class or to the ME Department receptionist
(b) EDGE students: refer to http://www.engr.washington.edu/pce/homework.html

Grading Policy:

Homework @ 30%
Midterm Exam @ 35%
Final Exam @ 35%