Optical Engineering 421/521 – Fall 2008
Review for Final Exam

The exam follows the same format as previous midterms. Some differences are:

- You are allowed 110 minutes. Everybody is expected to finish!
- You are allowed one sheet of paper with notes, equations, … You are also allowed o use a calculator..

Some tips:
Review the material covered on the midterms. Similar problems are given on the final exam.

In addition to the material covered on the two midterms, make sure that you know about
Motion control

What are issues and options for:

Bearings
Drive systems
Encoding

Mounting optical components:

- issues with clamping, preload
- issues with bonding, thermal stresses, strength
- Hertz contact stresses for point and line contact
- Concepts for prism mounting
- Concepts for mounting lenses
- Athermalization for adhesive mounts
- Stress calculations for overconstrained conditions
- Concepts for mounting mirrors, including calculations of self weight deflections
    - Axial support
    - Lateral support
    - Distributed supports (many points)
- Use of flexures, choosing geometry, calculating stiffness.

Also, make sure that you know how to do the homework problems!

I do not expect you to have al of the equations for everything! There are some simple relationships and rules of thumb which you must have (either in your head or on your sheet of notes.) I will provide equations for anything that is complicated (beam bending, Miles Equation, …)