

CE 4010/6010

Homework #5

Assigned: Tuesday, January 28, 2014;
Due: Thursday, January 30, 2014; end of class

Homework must be done neatly in pencil, on 8 1/2" x 11" paper, stapled together. Each step must be easily followed; diagrams are useful. State your assumptions. Homework that is not neat and legible may be rejected. Staple the question sheet to the front of your homework.

Make Sure To Include The Cover Page!

Problem 1: (100 points) Define the elements a , b , c and d of the stiffness matrix of the inclined truss shown below (in terms E , A and L). Include a sketch for each of the elements to demonstrate how you calculate.

$$\begin{Bmatrix} P_1 \\ P_2 \\ P_3 \\ P_4 \end{Bmatrix} = \begin{bmatrix} a & - & - & d \\ - & b & - & - \\ - & c & - & - \\ - & - & - & - \end{bmatrix} \begin{Bmatrix} \Delta_1 \\ \Delta_2 \\ \Delta_3 \\ \Delta_4 \end{Bmatrix}$$

