

In-Class learning activity for CAE-210

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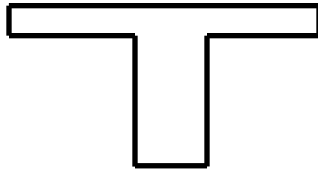
Discovery Based Learning Activity:

Subject: Centroids

Goal: For student to visually and conceptually understand what the centroid of an object is then discover its mathematical definition.

Activity:

1. Present the students the x-section of a beam and show how it has a balancing point.



2. Divide the students into teams of 3-4 and ask them. How can the balancing point be found mathematically for the cross section?
3. As team discussions progress, introduce the idea of applying a Cartesian coordinate system to the cross section.
4. Ask teams how the distribution of the mass affects the balancing point.
5. Ask teams if the thickness of cross section has an effect on the balancing point.
6. Introduce the difference between center of mass and center of area.
7. Start to describe the balancing point by introducing the equation for center of mass.

Follow-up Lecture:

Derive the center of area equation from the center of mass equation using a thin plate.