2ⁿᵈ Year   **Mechanics of Materials (Material Strength)**

T.D N° 3   (Product of inertia, Parallel-axis theorem [Steiner])
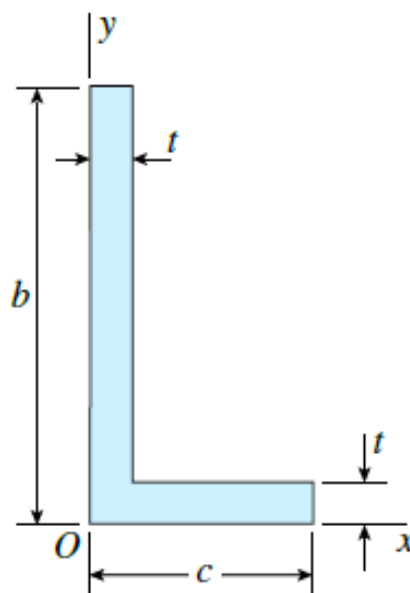
Problem 1 : (irregular area)

For the figure given in Problem 2, TD 3, Determine the moment of inertia I with respect to the x axis lying on its base.
Use the vertical rectangular differential element (strip.). compare with the first result.

Problem 2 : (Composite Area)

Calculate the moments of Inertia for this L shape cross section with respect to the centroidal axes x_c, y_c. (b = 6 in, c = 4 in, t = 0.5 in).
Calculate the product of Inertia with respect to the same centroidal axes.

No reply Homework 1:

Calculate the moments of inertia with respect to the x and y axes for your L shape (problem 2) using the integral method (you must obtain the same results)

No reply Homework 2:

Calculate the moment of inertia I_{xc} with respect to an axis through the centroid C and parallel to the x axis for the composite area **(you must find I_{xc} = 106.10⁶ mm⁴)**.
Calculate the product of inertia I_{xy} for the composite area **(you find I_{xy} = 24,3.10⁶ mm⁴)**.
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