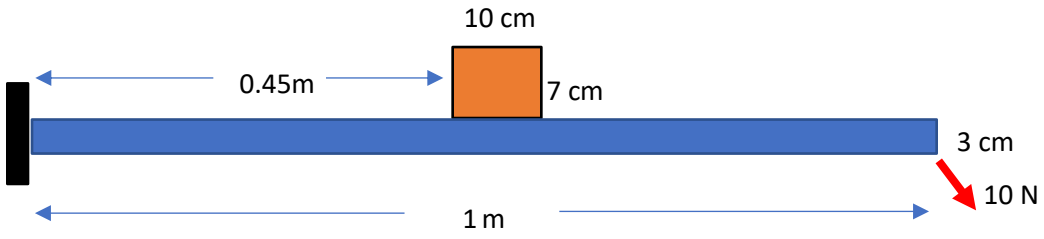
ME478 – Project 4

Spring 2024

Due May 8

1) Design a functional tuning fork for the tone A above middle C (A4, 440Hz). Use any material and geometry that you think is appropriate. Determine the first six natural frequencies and mode shapes.

2) Obtain the frequency response of the total displacement right bottom tip of the aluminum beam for 0 to 500Hz. Use plane stress with a dimension into the plane of 5 cm. The orange titanium block is rigidly mounted to the beam and the angle of the force is 45 degrees.



3) In Problem 12.6 assume that the uniform pressure is varying sinusoidally. Obtain the frequency response of the vertical displacement of the center of the top plate. The frequency range should include the six lowest natural frequencies.