

## Mode Shapes and Corresponding Natural Frequencies:

Mode 1: Natural Frequency = 2.3972 rad/s, Mode Shape = [0.577350, 0.816497]

Mode 2: Natural Frequency = 5.7874 rad/s, Mode Shape = [0.577350, -0.816497]

$$q_0 = [-0.86 ; 0.55] , q_0\text{.dot} = [-0.81 ; -0.15]$$

