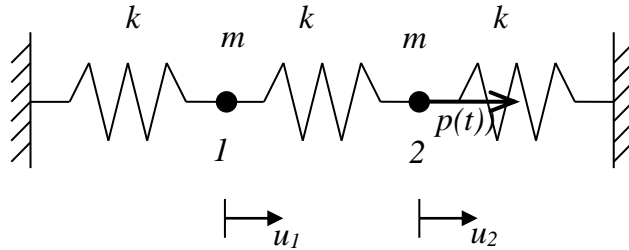# Home Exercise 4

The figure below shows a simple system with three springs (stiffness k) and two masses (mass m). At point 2, a time dependent harmonic force $p(t)=p_o sin \omega t$ is applied.

This is the same system as in Home Exercise 3, but with a force excitation. Assume that the excitation frequency is not coinciding with the natural frequencies of the system. Use the results from Home Exercise 3 to:

a) Determine the steady state response directly from the original set of equations, by solving a linear system of equations for the displacement amplitudes, without using modal analysis.

b) Use modal decomposition to solve the steady state response of the system.

c) Compare a) and b)

Hints

a) Compare Home exercise 2b) although this is analytical

b) Look at Lecture notes "Ex. Harmonic Force – Diagonal System"