

Lecture 19 Homework

Problem 19.1

Problem 5.44 in Rao

Problem 19.2

- a) Problem 5.54 in Rao.
- b) Compare your answer to that obtained using Simulink. You will need to change your gain blocks from “Element-wise[K.*u]” multiplication to “Matrix[K*u]”. For the value of “Gain” just put in the matrices. For example the “1/m” term will become $\text{inv}([10\ 0;0\ 5])$. Plot the difference between the Simulink and the exact for $t = 0$ to 20 s. If they are different explain why. Add a little damping to your system, i.e., a damping matrix $[5\ 0;0\ 5]$. How do they compare now? Note: When defining your input you need set the amplitude to $[50\ 0]$ or else it will apply the harmonic excitation to both masses.