



MEEG 311 – Lecture 18

Vibration and Control

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25 October 2018

Goals:

- PD controller design cont'd
- Effect of real zeros in the response of a second-order system:
 - Minimum phase zeros (zeros in the left-hand plane): They can deform the response if they are close to the dominant poles of the system e.g. by increasing the overshoot
 - Non-minimum phase (NMP) zeros (zeros in the right hand plane): Depending on the location of a NMP, **undershoot** can be present during the early stages of the response (the response moves initially in the direction opposite to the desired final value – this can be critical in the operation of the system)
- Unstable systems (i.e. systems with poles in the right hand plane) that have NMP zeros (zeros in the right hand plane) require EXTRA caution!