



MEEG 311 – Lecture 2

Vibration and Control

Ioannis Poulakakis

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Goals:

- Models of mechanical systems (1DOF harmonic oscillator)
 - Free Body Diagram
 - Predicting future evolution (initial conditions + model + inputs)
 - States and state-space representation
- General solutions of ODEs: Review
 - Homogeneous solutions (characteristic polynomial)
 - Particular solutions
 - Second-order ODE's: Natural frequency and damping ratio (underdamped, overdamped and critically damped oscillations)