College of Engineering
School of Aeronautics and Astronautics

AAE 36401 Lab
Control Systems Lab

Lab 4 Pre-Lab
The Control of the Inverted Pendulum

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The gains using Pole Placement:

K_1	K_2	K_3	K_4	K_5
-28.3497	58.7847	-23.1039	12.0592	25.2274

The gains using LQR:

K_1	K_2	K_3	K_4	K_5
-68.8145	156.0625	-51.6130	33.2344	44.7214

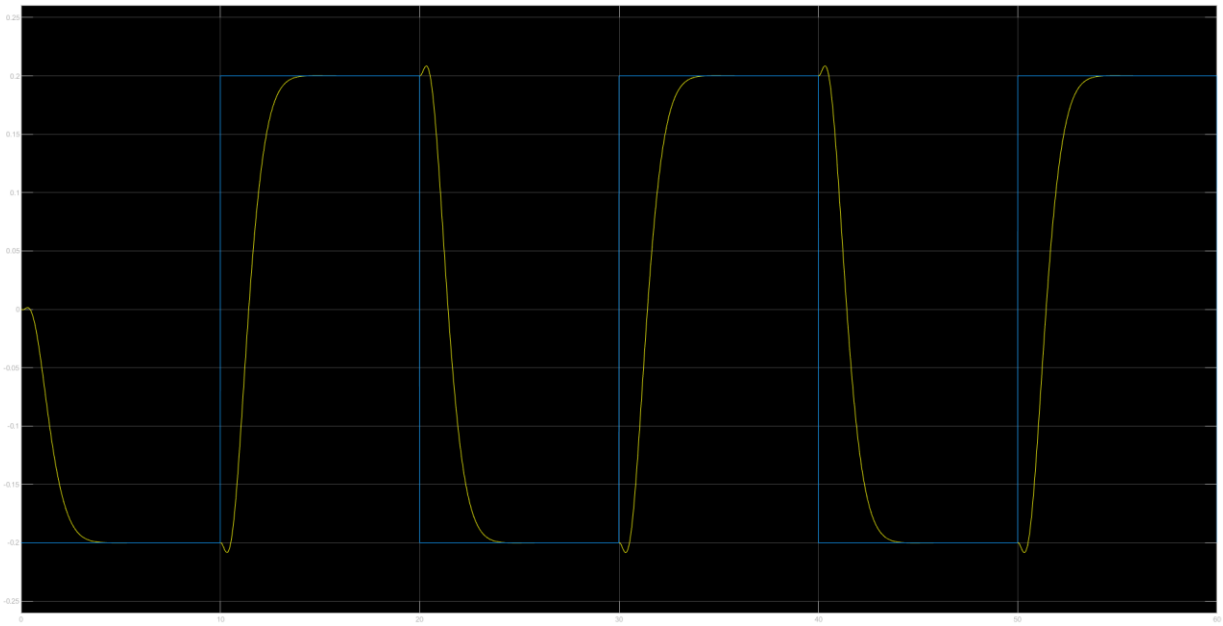
The poles for Pole Placement:

λ_1	λ_2	λ_3	λ_4	λ_5
-1.8+2.2i	-1.8-2.2i	-7.5	-4.8	-3

The poles for LQR:

λ_1	λ_2	λ_3	λ_4	λ_5
-40.5785	-2.6398+0.8961i	-2.6398-0.8961i	-2.0395+0.8637i	-2.0395-0.8637i

Plot for LQR



Plot for Pole Placement