SYSE6324 - Nonlinear Systems

SYSE 6324 (BMEN 6388 and EECS 6336 and MECH 6313) Nonlinear Systems (3 semester credit hours) Equilibria, phase portraits, linearization of nonlinear systems; periodic solutions; Poincare-Bendixson theorem; fundamental existence and uniqueness theorem for ODEs; Lyapunov stability theory; Invariance principle and LaSalle's theorem; converse theorems; singular perturbations; center manifold theorem; differential geometric tools, feedback linearization, input-output linearization, output injection, output tracking, passivity-based control; backstepping. Prerequisite: EECS 6331 or MECH 6300 or SYSM 6307 or equivalent. (3-0) T