

Control theory [3 – 0 – 1]

Course #:0904470

Prereq.: 0904300

Open and closed-loop (feedback) systems; examples of feedback control systems; review of complex variables; Laplace transform and transfer functions of basic elements; modeling of: electrical; mechanical; hydraulic and pneumatic systems; linearization of nonlinear systems; systems block diagram and signal flow graphs; transfer function; block diagram reduction techniques; Mason's gain formula; sensitivity of open and closed loop control systems; time response analysis and performance indices of first and second order systems; dominant poles of high order systems. Routh-hurwitz stability criterion; steady-state error coefficients; design and effects of basic control actions: proportional; integral and derivative; Bode diagrams and Nyquist stability criterion; gain and phase margins