

EEE.9-3.5 Digital Control Systems

Course contents: * Discrete time control. * Z-transform and inverse Z-transform. * Impulse invariance system discretization. Zero-order hold system discretization. Bilinear transform. Pade approximation. * Discrete time system description. Observer canonical form. Controller canonical form. * Closed control discrete time system analysis in state space. Controllability. Observability. Unit cycle criterion. Jury criterion. Nyquist criterion. Bode criterion. * Design of digital controllers. Dead-beat control. Lueberger observers. State feedback. Design of PID. Computer adjustments and calibration.