

Course Syllabus	EECS 4200 – Feedback Control Systems
Credits/Contact Hours	3 credit hours & three 50-minute lecture contact hours per week.
Instructor's Name	Dr. Richard G. Molyet
Textbook	R.C. Dorf and R.H. Bishop, "Modern Control Systems," Pearson Prentice Hall, 13 th edition, 2017.
Course Information	Feedback methods for the control of dynamic systems. Topics include: modeling, characteristics and performance of feedback systems, stability, root locus and frequency response methods and computer simulation. Prerequisite: EECS 3220 Required for EE majors
Specific Goals-Student Learning Objectives (SLOs)	The student will be able to 1. Formulate mathematical models for linear, time-invariant electrical, mechanical and electromechanical systems. 2. Construct block diagram and signal flow graph representations of linear, time-invariant systems. 3. Reduce block diagram and signal flow graph representations to a single transfer function. 4. Determine applications of closed loop systems. 5. Analyze and design control system specifications in the time domain. 6. Determine the stability of control systems. 7. Determine the relation between characteristic equation root location and control system performance. 8. Analyze the frequency response characteristics of a control system. 9. Apply feedback control techniques to contemporary automatic control systems. 10. Use MATLAB and Simulink to analyze open and closed loop control systems.
Topics	1. Introduction to control systems 2. Mathematical models 3. Block diagrams/signal flow graphs 4. State variable representation 5. Feedback system characteristics 6. Performance of feedback systems 7. Stability of linear feedback systems 8. Root locus method 9. Frequency response methods