EE 419- Modern Control Engineering

Hour: Lecture: 2 Hrs. Tutorial: 2 Hrs. Credit: 3.
Coordinator: Hasan Ibrahim

Text Book:

- G. F. Franklin & J.D. Powell & A.E. Naeinin, "Feedback Control of Dynamic Systems", Addison Wesley Publisher

Specific course information

a. General revision for root locus and frequency response. Lead compensator design by root locus method. Lag compensator design by root locus method. Lag lead compensator design by root locus method. Lead compensator design by frequency response technique. Lag compensator design by frequency response technique. Introduction to state space representation. Methods of writing state equation. Solution of the state equation. Controllability and observability. State variable feedback. Introduction to digital control systems. The z-transform. Block diagram representation digital systems. Time response of digital systems. Stability analysis for digital systems
b. Prerequisite: EE 418
c. Designation: Required

Specific goals for the course:

- An ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.
- An ability to identify, formulate, and solve engineering problems.

Course instruction outcomes:

- The students will be able to get acquainted with the classical methods of design the state space method of design for both continuous and discrete time systems.

Student outcomes:

C, E

Topics Covered:

- Lead, Lag, Lead/Lag compensators design
- Frequency response analysis.
- State space representation and solution
- Controllability and observability of state equation
- State variable feedback
- Digital system representation, response and stability.

Course / credit hours	Math & Basic Sciences	Engineering Topics	General Education
Modern Control Engineering /3	**1**	**2**	