

ELEG 5433 - DIGITAL CONTROL SYSTEMS

Spring Semester, 1996

Catalog Data: ELEG 5433 - Digital Control Systems. Credit 3. Signal processing in continuous-discrete systems. 1995-96 System modeling using the z-transform and state-variable technique. Analysis and design of digital control systems. Digital redesign for continuous control. Prerequisite: ELEG 4403.

Textbook: Digital Control, Richard J. Vaccaro, McGraw-Hill, 1995.

References: Modern Control Systems, Richard Dorf, Seventh Edition, Addison-Wesley.

Coordinator: T. W. Martin, Assistant Professor of Electrical Engineering.

Goals: The goal of this course is to expose the student the analysis and design of digital control systems.

Prerequisites by Topic:

1. Classical control system theory.

Topics:

1. Introduction to Digital Control. (1 class*)
2. Linear Algebra and Matrix Theory. (3 classes).
3. State-Space and Transfer Function Models. (4 classes)
4. Discrete-Time Models of Analog Plants. (4 classes)
5. Frequency Domain Analysis. (4 classes)
6. Designing State-Feedback Regulators. (4 classes)
7. Observers. (4 classes)
8. Tracking Systems. (4 classes)
9. Exams. (2 classes)

* Nominally 80 minutes of lecture per class.

Computer Usage:

SIMULINK with MATLAB will be used by the students on a large portion of their homework and exams.

Laboratory Projects:

None.

ABET category content as estimated by faculty member who prepared this course description:

Engineering Science:	1 credit or 33%.
Engineering Design:	2 credits or 67%.

Prepared by: _____ Date: _____

