

ELEG 4463 - CONTROL SYSTEMS LABORATORY

Spring Semester, 1996

Catalog Data: ELEG 4463 - Control Systems Laboratory. Credit 3. Experimental study of various control systems and components. The use of Programmable Logic Controllers in the measurement of system parameters, ladder-logic applications, process-control applications, and electromechanical systems. Prerequisite: ELEG 4403.

Textbook: Processor Reference Manual for PCC-500, A.I. Series, Latest Edition, Rockwell Software. Software Reference Manual for PLC-500, A.I. Series, Latest Edition, Rockwell Software.

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 to various control system design problems. This includes exposure to Programmable Logic Controllers, ladder-logic control, process control, and other common types of control systems.

Prerequisites by Topic:

Classical control system theory.

Topics:

1. Structure of Programmable Logic Controllers (1 class*).
2. Programming Programmable Logic Controllers (2 classes).
3. Ladder Logic Control Project (2 classes).
4. Classical Control Project (2 classes).
5. State Space Control Project (1 class).
6. Operator Interface for Programmable Logic Controllers (1 class).
7. Operator Interface Project (2 classes).
8. Selected Topics (3 weeks).

* Nominally 50 minutes of lecture and 3 hours of laboratory per class.

Computer Usage:

SIMULINK with MATLAB will be used to assist students with their controller designs and simulate the system response prior to the actual laboratory exercise.

Laboratory Projects:

See list of topics.

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

Engineering Design: 3 credits or 100%.

Prepared by: _____ Date: _____