ELEG 4963 - FIELD PROGRAMMABLE GATE ARRAY LABORATORY

Fall Semester, 1995

Catalog Data: ELEG 4963. Field Programmable Gate Array Laboratory. Credit 3. Implementation of digital logic
1995-96 and state designs with field programmable gate arrays. Emphasis is on the use of CAD tools for design and synthesis. Corequisite: ELEG 4943.

Textbook: None. Use is made of manufacturer's data books and current trade publications.

Coordinator: C. W. Caldwell, Associate Professor of Electrical Engineering.

Goals: To become proficient in the use of EDA (electronic design automation) tools for FPGA applications.

Prerequisites by topic:

1. Design of synchronous sequential circuits.
2. Design of asynchronous sequential circuits.
3. Design of fundamental mode circuits.
4. Static, dynamic and sequential hazards.

Laboratory projects:

1. Xilinx/Powerview tutorial. (2 classes)*
2. Combinational design: voting tabulator. (2 classes)
3. Hamming encoder/decoder. (1 class)
4. Synchronous circuit design: T-Bird taillights. (2 classes)
5. Xilinx Design Editor. (1 class)
6. Asynchronous circuit design: Vending machine. (2 classes)
7. Interfacing with serial A/D converter. (2 classes)
8. XDE tutorial generation. (1 class)

Computer Usage:

Extensive use is made of Powerview and Xilinx XDM (Xilinx Design Manager) software.

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

Engineering Science: 0 credits or 0%.
Engineering Design: 3 credits or 100%.

* One 50 minute class per week. Projects are completed in the remainder of the week on the student's schedule.

Prepared by: _____ Date: _____