Catalog Data: ELEG 4963. Field Programmable Gate Array Laboratory. Credit 3. Implementation of digital logic 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: ___________________________