Catalog Description: EEC 383 Digital Systems (3-0-3)
Pre- or co-requisite: EEC310.
Coverage includes binary number systems, Boolean algebra, combinational logic design principles, combinational logic design practices, finite state machine, sequential logic design principles, and sequential logic design practices.


References:

Coordinator: Dr. Pong P. Chu, Associate Professor of Electrical Engineering and Computer Science.

Course Objectives: This course is designed to:
1. To understand the principles of combinational and sequential logic, the operation of commonly used components
2. To learn formal techniques and practical skills of designing combinational and sequential circuits

Expected Outcomes: Upon completion, students should be able to
1. Understand Boolean algebra and binary number system
2. Understand the principles of combinational and sequential logic
3. Analyze and design combinational circuits
4. Analyze and design sequential circuits

Fulfillment of EE and CE Program Objectives and Outcomes:

Objectives: 1. Practice electrical engineering in one or more of the following areas: communications, computers, controls, power electronics, and power systems.
2. Define and diagnose problems, and provide and implement electrical engineering solutions in an industrial environment.

Outcomes: a. An ability to apply knowledge of mathematics, science, and engineering to general electrical engineering; and, in particular, to one or more of the following areas: communications, computers, controls, power electronics, and power systems
b. An ability to design a system, component, or process to meet desired needs.
e. An ability to identify, formulate, and solve electrical engineering problems.

**Contribution of Course to Meeting the Professional Component:**
Math & Basic Science: 1 credit;
Engineering Topics: 2 credits;
General Education: 0 credit

**Prerequisites by Topic:**
Principles of electric circuits

**Topics:**

1. Binary numbers, number base conversion and codes 4
2. Boolean algebra and gates 4
3. Simplification of Boolean functions 5
4. Analysis and design of commonly used combinational components 8
5. Analysis of sequential circuits 4
6. Design of sequential circuits 8
7. Analysis and design of commonly used sequential components 8
   Test 4

Total 45

**Computer Usage:**
None