EE 210

1. **Course Number & Name:** EE 210 (Lecture), Digital Circuits & Logic Design
2. **Course Credit and Contact Hours:** 3 Units, 3 hours
3. **Course Coordinator:** Dr. Sudhir Shrestha
4. **Textbook:** Morris R. Mano and Michael D. Ciletti, *Digital Design – with an Introduction to the Verilog HDL*, 5th Edition, Pearson. ISBN 978-0132774208.
5. **Supplemental Materials:** None
6. **Specific Course Information:**
   a. **Description:** Students learn how to analyze and evaluate scientific, inductive and deductive reasoning, through digital logic and its application to logic gates and digital electronic circuits. Laboratory work includes designing, building and testing of digital circuits and designs. Project assignments require students present their own design and the final product in public, making persuasive presentations with efficient verbal and non-verbal skills, and listening to peer's critiques for improvement.
   b. **Prerequisites:** EE 112, or consent of instructor
   c. **Co-Requisite:** EE 230, or consent of instructor
   d. **Status:** ☒ Required for EE program, ☐ Elective, ☐ Selected Elective
7. **Specific Goals for the Course:**
   a. **Specific outcomes of instruction:** Upon successful completion of this course the students will be able to:
      i. Demonstrate knowledge of Boolean algebra and logic gates.
      ii. Apply various techniques for gate level minimization.
      iii. Analyze and design combinational logic circuits.
      iv. Analyze and design sequential logic circuits.
      v. Demonstrate knowledge of registers and counters.
      vi. Demonstrate knowledge of storage elements, memory, and programmable logic.
      vii. Understand and articulate public health, safety, and welfare considerations in engineering design solutions.

b. This course supports the following ABET Student Outcomes:

i. *SO-2: an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.*

8. Brief List of Topics to be Covered:

a. Digital Systems and Binary Numbers
b. Boolean Algebra and Logic Gates
c. Gate-Level Minimization
d. Combinational Logic
e. Sequential Logic
f. Registers and Counters
g. Memory and Programmable Logic
h. Engineering Design and Public Health, Safety, and Welfare