



## EE233-Digital Logic Circuit Laboratory (Required Course)

**Code and Name:** EE233 Digital Logic Circuit Laboratory

**Credit Hours:** 1 (Practical:2)

**Textbook:**

- Lab manual Given by University.

**Other References:**

- Digital Design, M. Morris Mano and Michael D. Ciletti, Fourth Edition, Prentice Hall, 2007.
- IEEE journals in Digital Electronics, Logism, VHDL, and Verilog.

**Course Description:**

Hands-on experience to design, construct and analyze different logic circuits. Student will construct logic circuits using integrated circuit (IC), logic breadboard, LEDs, power supply and other basic components. Both combinational and sequential logic circuits will be given in experiments. Design and analysis of various digital circuits involving logic gates, adders, multiplexers, decoders, flip-flops, counters and registers is included. Simulation using hardware descriptive language (HDL) such as Verilog will be covered.

**Pre-requisites:** EE231.

**Co-requisites:** None.

**Course Learning Outcomes:**

With relation to ABET Student Outcomes (SOs: 1-7)

1. List and recall Basic Gates and their Truth Tables, Flip Flops and their Truth Table, Block diagrams of some standard circuits Boolean algebra. (1)
2. Lab Procedure. (6)
3. Analyze and demonstrate different Combinational and sequential Circuits experimentally. (6)
4. Design and demonstrate different Combinational Circuits experimentally. (2)
5. Design and demonstrate different sequential Circuits experimentally. (2)
6. Data documentation. (3)

**Topics to be covered:**

- Introduction to Digital Logic Lab and Familiarization with the Trainer Kit.
- Experiment 1: Digital Logic Gates.
- Experiment 2: Boolean Algebra and Functions.
- Experiment 3: Combinational Circuits.
- Experiment 4: Code Converters.
- Experiment 5: Multiplexers and Decoders.
- Experiment 6: Adders and Subtractors.
- Experiment 7: Latches and Flip-Flops.
- Experiment 8: Sequential Circuits.
- Experiment 9: Counters.
- Experiment10: Shift Registers.

**Grading Policy: check**

The grading for the course is 60% coursework and 40% Final Exam. The coursework consists of one Midterm Exam, where the midterm exam is worth 20%. It also includes quizzes and lab reports for the remaining 40% that is modified by the course instructor.

