ABET 2000 Program Learning Outcomes

Engineering programs **must** demonstrate that their graduates have:

(a) an ability to apply knowledge of mathematics, science, and engineering

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(c) an ability to design a system, component, or process to meet desired needs

(d) an ability to function as an effective team member

(e) an ability to identify, formulate, and solve engineering problems

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global and societal context

(i) a recognition of the need for, and an ability to engage in life-long learning

(j) knowledge of contemporary issues

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

Additional Computer Engineering Outcomes:

(l) Knowledge of Probability and Statistics and their applications in Computer Engineering

(m) Knowledge of Discrete Mathematics

(n) **The ability to design a system that involves the integration of hardware and software components**

COE 202 Digital Logic Design

Course Learning Outcomes Table

Course Learning Outcomes	Outcome Indicators & Details	Assessment Methods and Metrics	ABET 2000
1. Ability to use math and Boolean algebra in performing computations in various number systems and simplification of Boolean algebraic expressions.	➢ Represent integer and fractional values in various number systems ➢ Convert number representation from one system to another ➢ Perform arithmetic operations in various number systems ➢ Represent data in different binary codes including error detecting codes ➢ Simplify Boolean expressions using Boolean algebra & identities	➢ Assignments ➢ Quizzes ➢ Exams	A
2. Ability to design efficient combinational and sequential logic circuit implementations from functional description of digital systems.	➢ Derive gate-level implementation of a given Boolean expression and vice versa ➢ Ability to build larger combinational functions using predefined modules (e.g., decoders, multiplexers, adders, Magnitude comparators.) ➢ Ability to build a state diagram / table for both Moore & Mealy models from functional description ➢ Ability to design & implement Moore & Mealy model synchronous sequential circuits using different Flip-Flop types. ➢ Ability to draw timing diagrams for major signals of both sequential and combination circuits	➢ Assignments ➢ Quizzes ➢ Exams	C
3. Ability to use CAD tools to simulate and verify logic circuits.	➢ Ability to simulate and verify the operation of combinational circuits ➢ Ability to simulate and verify the operation of sequential circuits	➢ Assignments	K