1. **Course number and name**
   EE 214: Design of Logic Circuits

2. **Credits and contact hours**
   4 (3 lecture hours and 3 lab hours per week)

3. **Instructor’s or course coordinator’s name**
   Clint Cole

4. **Text book, title, author, and year**
   Project Materials: (design projects, exercises, reading) <www.realdigital.org>
   *Other supplemental materials*
   Blackboard circuit board (*Real Digital*); Vivado Webpack (*Xilinx*); Instructor notes and slides for some topics

5. **Specific course information**
   a. **Catalog description:** Design and application of combinational logic circuits with exposure to modern methods and design tools; introduction to sequential logic circuits.
   b. **Prerequisites or co-requisites:** Prior programming class (C, Java, or equivalent) recommended.

6. **Specific goals for the course**
   At the end of this course, students must be able to:
   - Represent logic circuits requirements in an engineering formalism. (1)
   - Construct behavioral and structural logic circuit implementations using Verilog. (1,2,6)
   - Know how to analyze a logic system to find a minimum implementation. (2,6)
   - Know the structure and function of common logic circuits (multiplexors, shifters, adders, registers, counters, etc.). (1,2,6)
   - Be able to design a combinational or sequential logic circuit to meet a given requirement using structural and/or behavioral methods. (1,2,6)
   - Be able to use modern design tools to capture, simulate, and synthesize circuit designs. (1,2,6)
   - Effectively communicate technical design details to instructional staff. (3)
7. **Brief list of topics to be covered**
   - Basic definitions and electronic circuits,
   - Field-effect transistors and CMOS circuits,
   - Logic circuits and logic gates and their representations,
   - Logic minimization theory and techniques,
   - Use of modern design technologies and CAD environments,
   - Design and function of common combinational digital circuits,
   - Verilog syntax and its use in modelling circuits,
   - Design of common arithmetic circuits,
   - Design of sequential circuits.