Instructor: Dr. Colleen Bailey, NTDP B252, Colleen.Bailey@unt.edu

Office Hours: M 2:30 PM to 3:30 PM, Th 12:30 PM to 1:30 PM, or by appointment

Lecture: TR 10:00 AM to 11:20 AM; NTDP B185

TA: Srijita Mukherjee, NTDP B239, srijitamukherjee@my.unt.edu, MW 12:00 PM to 2:00 PM

Prerequisite: MATH 1710 Calculus I

Course Description: Digital computers and digital information processing systems; Boolean algebra, principles and methodology of logic design; machine language programming; register transfer logic; microprocessor hardware, software and interfacing; fundamentals of circuits and systems; computer organization and control; memory systems, arithmetic unit design.


Course Outline: (tentative)

Topic 1 . . . . . . . . . . . . . . . . . An Introduction to Digital and Analog Systems
Topic 2 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Number Systems and Codes
Topic 3 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Boolean Algebra, Switching Functions, and Canonical Forms
Topic 4 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Circuit Minimization, Analysis of Combinational Circuits, and Timing Issues
Topic 5 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Top-down Modular Design of Combinational Logic
Topic 6 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Sequential Circuit Elements - Latches and Flip-Flops
Topic 7 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Modular Sequential Logic - Counters and Shift Registers
Topic 8 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Analysis and Design of Synchronous Sequential Circuits
Topic 9 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Analysis and Design of Asynchronous Sequential Circuits
Topic 10 . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . Digital Logic Testing

Grading:
Homework 15%
Exam 1 25%
Exam 2 25%
Final 30% (Thursday, May 10, 8 AM)
Project 5%

Course Objectives: To understand analyze digital systems and the logical blocks that comprise them.

Blackboard: Course material and grades will be maintained on the course Blackboard site. You should check this page often to keep current on important information. https://learn.unt.edu
Rights and Responsibilities:

- Students aware of an authorized absence from a scheduled class or exam (religious observance, military service, official university function, etc.) should notify the instructor as soon as possible according to UNT Policy 15.2.5.

- Students with disabilities should inform the instructor of their needs at the beginning of the semester according to UNT Policy 18.1.14 in order to receive proper attention and accommodations.

- Cheating and academic dishonesty will not be tolerated. Any student found to have participated in academic dishonesty will receive an F in the class, and may be subject to further disciplinary action. Acts of academic dishonesty include: academic fraud (e.g. changing solutions to appeal a grade), copying or allowing one’s work to be copied, fabrication/falsification, plagiarism, sabotage of others’ work, substitution (e.g. taking an exam for someone else). For more details, see UNT Policy 18.1.16.

- Letter grades will not be assigned until the end of the term, after the final exam has been graded. Any letter grade assignment posted before the end of the class should be regarded as tentative and subject to change.