REQUIRED TEXT

Class notes consisting of 4 parts:

> Tiny User's Guide, Version 4.2010
> Notes on radix conversions and arithmetic
> MASM Class Notes
> Notes on digital gates and boolean algebra

INSTRUCTOR

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Office Hours: 12:00 - 1:00 MWF
                     3:00 - 4:00 MWF
                    12:30 - 2:30 TTh

ASSESSMENT

Harding University, since its charter in 1924, has been strongly committed to providing the best resources and environment for the teaching-learning process. The board, administration, faculty, and staff are wholeheartedly committed to full compliance with all criteria of the Higher Learning Commission. The university values continuous, rigorous assessment at every level for its potential to improve student learning and achievement and for its centrality in fulfilling the stated mission of Harding. Thus, a comprehensive assessment program has been developed that includes both the Academic units and the Administrative and Educational Support (AES) units. Specifically, all academic units will be assessed in reference to the following Expanded Statement of Institutional Purpose: **The University provides programs that enable students to acquire essential knowledge, skills, and dispositions in their academic disciplines for successful careers, advanced studies, and servant leadership.**

For every course credit hour, the typical student should expect to spend at least three clock hours per week of concentrated attention on course-related work, including but not limited to time attending class, as well as out-of-class time spent reading, problem solving, reviewing, organizing notes, preparing for upcoming quizzes/exams, developing and completing projects, and other activities that enhance learning. **Thus, for a three-hour course, a typical student should expect to spend at least nine hours per week dedicated to the course.**

COURSE GRADE

4 Exams	300
1 Comp. Final	150
Programs	80
Quizzes	70
Attendance	30
Homework	100
TOTAL	730

Assignments will be counted late and a penalty of 10% imposed for each **calendar** day a program or other assignment is late.

Academic Integrity

Honesty and integrity are characteristics that should describe each one of us as servants of Jesus Christ. As your instructor, I pledge that I will strive for honesty and integrity in how I handle the content of this course and in how I interact with each of you. I ask that you join me in pledging to do the same.

Academic dishonesty will result in penalties up to and including dismissal from the class with a failing grade and will be reported to the Associate Provost. All instances of dishonesty will be handled according to the procedures delineated in the Harding University catalog.

Students should be aware that the professor uses a software package that compares all program source code with that previously submitted by students during the last few years.

Personal Computers:

Personal computers (laptops, tablets, etc) may be used during class to take notes, write programs, or other class-related activities ONLY when specifically allowed by the professor. Students that use personal computers for other purposes may lose the privilege to bring a personal computer to class. A student who is using a computer inappropriately is a distraction to other students around them.

Students with Disabilities:

It is the policy for Harding University to accommodate students with disabilities, pursuant to federal and state law. Therefore, any student with a documented disability condition (e.g. physical, learning, or psychological) who needs to arrange reasonable accommodations must contact the instructor and the Disabilities Office at the beginning of each semester. (If the diagnosis of the disability occurs during the academic year, the student must self‐identify with the Disabilities Office as soon as possible in order to get academic accommodations in place for the remainder of the semester.) The Disabilities Office is located in Room 219 in the Student Center, telephone, (501) 279-4019.

Student Learning Outcomes

Students will be able to ...

1. write assembly language programs that use functions with parameters passed by value and by reference.
2. perform mathematical operations using binary and hexadecimal numbers that include fractions.
3. represent floating point numbers using IEEE-754 format and ASCII characters using binary.
4. draw digital circuits that implement commonly used operators, such as full-adders and two's complement.

5. to simplify Boolean expressions using Boolean algebra and Karnaugh Maps.

COURSE OUTLINE

I.   Introduction
        A. Course Description and Overview
        B. Introduction
        C. Computer History & Evolution

II.   The Organization of a Computer System
        A. Processors
        B. Primary Memory
        C. Secondary Memory
        D. Input/Output Devices

III.   TINY (Tiny User's Guide)
        A. Basic TINY Architecture
        B. RUNTINY and the DEBUGGER
        C. TINY assembler
        D. Structured Programming Constructs
        E. Subroutines & Stacks
        F. Arrays & String functions

Exam 1 (100 points)

IV.   Data Representation
        A. Radix Number Systems
        B. Conversion between different radix systems
        C. Binary and Hexadecimal Arithmetic
        D. Integers
        E. Floating-Point Numbers

Exam 2 (50 points)

V.   Assembly Language for the Intel Pentium
        A. Pentium Architecture
        B. Memory Models
        C. Data Types
        D. Addressing Modes
        E. Pentium Instruction Set

Exam 3 (100 points)

VI.   The Digital Logic Level
        A. Gates and Boolean Algebra
        B. Basic Digital Logic Circuits
        C. Karnaugh Maps
        D. Memory Circuits

Exam 4 (50 points)

Comprehensive Final Exam (150 pts) - Tuesday, May 2, 1:00 - 3:00pm