

**Electrical and Computer Engineering Department**  
**EE 4142 -- Digital Design II Laboratory**  
**Spring 2020**

**As part of UTEP's mission to develop, promote and maintain safety, healthy learning the classes has been transition to online delivery, therefore the syllabus has been modified accordingly.**

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**Text:** Logic and Computer Design Fundamentals, 4th Edition, M. Morris Mano and Charles R. Kime

**Course Description:** Design and verification of digital systems using simulation. Laboratory implementation using standard, integrated circuits and programmable logic devices.

**Prerequisite:** EE 3376 and EE 3176, each with a grade of "C" or better.

Prerequisite by Topic:

- (1) combinational and sequential digital design techniques
- (2) basic microprocessor architecture
- (3) assembly language programming
- (4) High-Level language programming

**Corequisite:** EE 4342 -- Design techniques for complex digital systems, with emphasis on computer hardware design and computer-aided techniques, including hardware description languages and hardware simulation packages. Algorithmic State Machine design is stressed for small systems. Emphasis on problem definition, design, and verification.

**Students completing EE 4142 will be able to:**

1. Utilize the IDE design environment to create digital sequential circuits.
2. Carry out the design cycle of design, simulation, verification, and implementation.
3. Troubleshoot circuitry at any step of the design cycle, in simulation or hard-wired circuits.
4. Recognize and apply typical hardware constructs for processing units.
5. Recognize and apply typical hardware constructs for control units: hardwired and microprogrammed.
6. Design a full central processing unit.

**Materials Required:** **No special supplies required. Lab sessions will be recorded in Blackboard Collaborate and students will be allowed to download and review. Prelabs are still required, and a quiz will be given after each lab session.**

**Guidelines:**

**Each lab is divided into two important tasks: Pre-lab and Lab Report. Each students must submit their own work.**

Prelabs will be assigned and due the week prior. You must turn in a formal lab report with figures and diagrams, due by the beginning of the next lab session. The report format should contain Objective, Equipment, Lab Procedure and Conclusion. A template for your lab report will be provided. If a program is attached to the lab report, make it an Appendix to your report, and be sure it has the required comments.

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**Grades**

Grading will be based on the standard scale

90% - 100% → A

80% - 89% → B

70% - 79% → C

60% - 69% → D

Below 60% → F

**Point distribution**

Each lab is worth 100 points

20 points – Prelab

30 points – Demo at checkout time

50 points – Lab report

**ACADEMIC HONESTY**

As an entity of The University of Texas at El Paso, the Department of Electrical and Computer Engineering is committed to the development of its students and to the promotion of personal integrity and self-responsibility. The assumption that a student's work is a fair representation of the student's ability to perform forms the basis for departmental and institutional quality. All students within the Department are expected to observe appropriate standards of conduct. Acts of scholastic dishonesty such as cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in the whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student, or the attempt to commit such acts will not be tolerated. Any case involving academic dishonesty will be referred to the Office of Student Conduct and Conflict Resolution (OSCCR). The Associate Dean of Students will assign a Student Judicial Affairs Coordinator who will investigate the charge and alert the student as to its disposition. Consequences of academic dishonesty may be as severe as dismissal from the University. See the OSCCR homepage at <http://sa.utep.edu/osccr/> for more information.

**AMERICAN DISABILITIES ACT**

If you feel you may have a disability that requires accommodations, contact the Center for Accommodations and Support Services (CASS) at 747-5148 or go to the Union East, Room 106.