

University of Texas at El Paso
EE 4342: Digital Systems Design II
EE 5390: Advanced Digital Systems
Spring 2021

Course Format: Online Asynchronous delivery

Instructor Professor Miroslava Barúa

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Office Virtual Office via MS Teams

Office Hours Tuesday/ Thursday 3:00-4:00pm or by appt.

REQUIRED COURSE MATERIALS

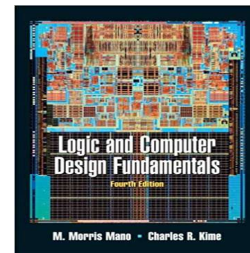
1. Textbook: “Logic and Computer Design Fundamentals”

Authors: M. Morris Mano and Charles R. Kime.

Edition: 4th Edition

Publisher: Pearson

ISBN-10: 013198926X **ISBN-13:** 978-0131989269



2. Technology Requirements

- **Access to our Blackboard (BB) shell**- Course content is delivered via the Blackboard Learning Management System (LMS). Here you will find all our course resources, announcements, posted virtual office hours, submit/participate in assessment activities using integrated tools.
- **Access to a laptop/Desktop** – Device should be enabled with **webcam** (integrated on device or external located on top of monitor), **microphone**, ability to install required software and reliable Internet access.
- Use of **@miners e-mail account** – all official class communication should be using this domain
- **Respondus LockDown Browser and Monitor** -- **Install** (for free!) and use for online exams/quizzes

To get a basic understanding of **LockDown Browser**, please watch a video by following this link: <https://www.respondus.com/products/lockdown-browser/student-movie.shtml>.

To download and install **LockDown Browser** click on the following link:

<https://download.respondus.com/lockdown/download.php?id=586140509>

- **Create PDF files** -- be able to create PDF files to upload assignments {by converting directly from Word to PDF, use a scanner or use a scanning App}

📌 You will need all the online tools (listed above) for content delivery, assignment submission, and to participate in all assessment activities. **Detailed instructions for these tools can be found on the “How to...{instructions}” folder located on our course Blackboard shell.**

COURSE DESCRIPTION: What this class is about

Course Description: In Digital Systems Design II you will learn about 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.

Prerequisite: EE 3376 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 4142 must be taken concurrently with EE 4342.

Students completing EE 4342 will be able to:

1. Apply different design methods for digital circuitry from problem statement to physical implementation
2. Use good design techniques, especially top-down design such as the ASM method.
3. Recognize and apply typical hardware constructs for processing units.
4. Recognize and apply typical hardware constructs for control units: hardwired and microprogrammed.
5. Write microcode using standard microcoding techniques
6. Use computer-aided tools to simulate and verify designs
7. Find information on specific chips and how to obtain application notes

Topics Covered:

1. Review of combinational and sequential digital design techniques, HDL representation, memory components and PLDs
2. Algorithmic State Machine (ASM) design procedure
3. Datapath (CPU) operations and design; design of a control word
4. Sequencing and Control: hardwired and microprogrammed
5. Instruction set architecture
6. I/O, communication and memory systems (if time allows)

COURSE FORMAT: The class will be delivered Online with asynchronous mode

The course will be delivered using [Online asynchronous learning modules](#). This means there are **No** regular weekly meetings.

Asynchronous content → To accommodate diverse schedules, all class resources will be delivered and accessible in **asynchronous mode**. **Asynchronous means** students are able to **access the learning modules at their own time** without a designated time. Please be proactive and continue your academic activities by diligently keeping track of your own progress.

- **Learning modules** → This course is designed using a modular format—that is, each week is “packaged” as a single module so that all the materials are contained in one area for a given

week. This format is designed to help students maintain a routine and timely **participate in the class activities**. Participation is recorded in the **instructor assessment** portion of your grade. Inside the learning modules you will find:

- **Pre-recorded video lectures:** expect lectures to be **posted every Tuesday and Thursday**.
 - **Assignments** → **Completion of all activities is self-paced; however, all assignments have firm deadlines.** All deadlines refer to local El Paso Texas time (**Mountain Standard Time**)
- **Synchronous discussions** → **We will NOT meet every week.** Depending on the needs of the class, we **may schedule synchronous discussion sessions** when information/discussion will benefit from real-time collaboration (example: a review session). Such live-sessions will occur in the virtual classroom within **Blackboard Collaborate Ultra environment** where you will have the opportunity to ask questions. **If needed, the synchronous session will be announced in advance, will be recorded for the benefit of those that can't attend, and will be posted for access afterwards.*

Grading & Course Assignments – How grade is calculated

There will be no curving of grades in this course.

Grading will be based on the standard scale:

- 90% >.....**A**
- 80% -89%.....**B**
- 70% -79%.....**C**
- 60% -69%.....**D**
- Below 59%.....**F**

Your final grade is earned by your active participation and performance in the following components (***Graduate students, please see note at the end of this section**):


Course Grade Distribution	
Exam #1	20%
Exam #2	20%
Exam #3	20%
*Homework & Quizzes	30%
Instructor Assessment	10%
TOTAL	100%

📌 **Exams:** There will be three partial exams (1, 2 and 3, all equally weighted) to assess your knowledge of the digital systems design techniques studied during each period of the course. You should use your own notes (obtained from reading assignments and from watching the lecture videos), homework problems, examples, reference materials, quizzes and handouts as your study guide for the exams. The use of calculators or other electronic devices is strictly prohibited during all exams/quizzes. **Refer to the associated “Course Schedule” for estimated exam dates. Official exam dates will be announced and posted on Blackboard on a timely manner.**


- Please notice this course **requires** the use of **Respondus LockDown Browser** and **Respondus Monitor (webcam and microphone)** for online exams. You will be asked to provide your official UTEP ID and credentials to be allowed to take the exam. Take the practice test in advance to avoid technical difficulties at the time of the exams. **Review the Test Proctoring Software Policy (located below on syllabus in the Policies section)**

- **No exam score will be dropped;** however, if you need/have to **replace** a low score in one of the partial exams, you will have the **option to take a comprehensive final exam** (all chapters in the semester). Be aware that inherently a comprehensive exam will be more difficult and that **you must have taken all 3 exams to qualify for this option.**
 - If you **miss** an exam **without** having an approved excuse, it will be graded with a "zero" in that exam and you will **not qualify** to replace it.
 - **If** there is an **extenuating circumstance** that can cause a student to miss **one** examination **and** the circumstance warrants an excused absence approved by the instructor, such student will qualify to take a COMPREHENSIVE exam at the end of the semester to **replace** that **one** missed exam. Such student must have taken the other two exams to qualify for this replacement.

If you qualify and wish to take the comprehensive final, you will **have to notify the instructor** (more details later in the semester).

 **Homework:** A portion of your content mastery depends on completion of homework assignments, so make sure you understand and can solve all the problems by yourself. Remember to seek immediate assistance from the different resources (virtual offices of instructor and lab TAs) if you need help you can ask questions on our **Blackboard Discussion board**. You are responsible for doing the homework, even though **it may or may not be collected**. Homework assignments will include:

- **Problem sets** – Series of problems will be assigned for you to practice your design and analysis skills. When these problem sets are collected, you must submit them by **scanning and uploading it as a single PDF file**. Good homework presentation ~ including neat/legible PDF scanned files~ are **expected and required**. To be able to receive full credit, each homework **must have a cover sheet** (with **Student's Name, course CRN number, Assignment number and Due date**), **problems should be presented in the same order as listed on the assignment instructions** and final answers clearly marked with a box around it.
- **Reading assignments** → Read all the assigned sections from the **textbook** and **reference material**. Refer to '**Course Schedule**' for topic sequence.
- **All homework assignments** must be completed by the posted **deadline**. Late homework will only be accepted in the case of illness or an emergency; you are responsible for notifying me as soon as possible (ideally **before the deadline**) of the situation (illness or emergency) necessitating late submission of homework. Lowest homework score will be dropped and all others will count towards your grade.

 **Quizzes:** A portion of your grade will come from quizzes so make sure to be well prepared for them on a timely manner. Quizzes will assess your **completion and understanding** of all **homework assignments** (based on problem sets) as well as your basic understanding of the class material that has been **covered in the video-lectures**. The intention of the quizzes is to encourage you to stay on track with the class material. Please note that:

- **No make-up quiz will be given;** however, your lowest quiz score will be dropped and all others will count towards your grade.

- Quizzes will be administered using **Blackboard tools** {Quizzes on Blackboard or using **Gradescope**} so make sure you know how to use these tools (refer to the '**How to...{instructions}**' folder)

Instructor Assessment: Because this is an online course, this assessment is based on your **active participation** in the course activities. This activity will be determined by: uploaded / completed **assignments**, participation in online **activities** {such as exams and quizzes} and **access statistics** regarding posted asynchronous material. Each of these activities will be given point values that add up to the total *instructor assessment* portion of your grade. Because these activities are designed to contribute to your learning each week, they **cannot be made up** after their due date has passed, so students are expected to stay active in the course by logging to Blackboard and integrated tools. If you have an excessive number of missed items, you may be dropped from the course.

Extra credit: If needed, extra credit may be assigned to the ENTIRE CLASS ONLY. No individual can request to present work for extra credit. When needed, optional questions/challenge problems will be added to assignments, quizzes or exams that will count as extra credit.

Graduate Students: If you are a **graduate student** taking this course as part of your degree plan, please note that you are responsible for completing all work required of undergraduates **and**, in addition you are expected to:

- Successfully complete a **final project** (worth **10 %** of the final grade allotted from the *Homework & Quizzes* component)
 - Successfully complete a **final exam**, prepared especially for graduate students; and
 - **Maintain an 80% average** (minimum) on homework, design work and exams
- Failure to comply will warrant a failing grade in the course

Course Schedule and Important Dates: This information will be available on Blackboard as separate document highlighting topic sequence, key assignments, important dates and activities. Documents are subject to changes at the discretion of the instructor to adapt to the needs of the class.

COURSE COMMUNICATION and LEARNING ENVIRONMENT: How we will stay in contact

Because this is an online class, we won't see each other in the ways you may be accustomed for Face-to-Face (F2F) class formats. However, there are a number of ways we can keep the **communication channels** open:

- **Office Hours:** We will not be able to meet on campus, but you are highly encouraged to **visit my virtual office** so we interact and talk one-on-one about your questions and comments related to the course. **I will be available only during the posted times** or please send me an email if you have schedule conflicts and need to make an **appointment** to meet with me outside the posted office hours. My office hours will be held **using MS Teams**. Please notice you can also seek assistance by contacting a member of our EE4342 instruction team (Lab TAs)

- **E-mail Communication:** Send all your class related e-mails to miroslav@utep.edu . Due to high volume of emails being received, please be patient and be certain that I will make every attempt to respond to your email within **24-48 hours** of receipt (usually much sooner but do not wait until the last minute to send me a message about something that is due in a few hours or the next day because - due to response window- my response may not get back to you on time). **Make sure** the message's subject description has prefix "**EE4342**" or "**EE5390**" followed by the rest of the message's subject (Example: "**EE4342** Question about homework"). In body of email, clearly state your question. All this will **help receive a quicker response time!** Send all messages **from your Miners account** and **include your name and UTEP ID number**.
- **Announcements:** Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.
- **Discussion Board:** We will use this resource **for frequently asked questions**, technical issues, and engaging discussions of constructive content related to our class. Please check out the discussion board **to see if your question has been answered previously**, and if not, participate in the discussion boards by posting your question, comments or thoughts! **Please respond to other students' questions if you have a helpful response**, this will help create a sense of community and will give you an opportunity to **engage with your classmates**.

Classroom NetEtiquette/ Student Conduct: Remember that you must be courteous, respectful and professional in the way you address others; either in writing (email, chat, discussion boards) or during one-on-one sessions at virtual office with instructor and lab TAs. Therefore, please keep these netiquette (network etiquette) guidelines in mind. **Failure to observe them may result in disciplinary action**

- **Respect and courtesy must be provided** to classmates, TAs and instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the ideas, not the person. Post only what anyone would comfortably state in a F2F situation.
- Blackboard is **not** a public internet venue; **all postings to it should be considered private and confidential. Whatever is posted in these online spaces is intended for classmates and instructor only.** Please do not copy documents and paste them to a publicly accessible website, blog, or other space. If students wish to do so, they have the ethical obligation to first request the permission of the writer(s).

COURSE AND UNIVERSITY POLICIES:

COPYRIGHT STATEMENT FOR COURSE MATERIALS: All materials used in this course (such but not limited to recordings, assignments, exams and quizzes) are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. **You may not further disseminate (i.e., share, send or post) any class materials/resources outside of this course. Doing so may result in disciplinary action**

MAKE-UP WORK POLICY: Make-up work will be given only in the case of a documented emergency. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me—in advance if at all possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

COURSE DROP POLICY: According to UTEP Curriculum and Classroom Policies, “When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class”. If you have a large number of missed assignments you may be dropped from the course. The grade that you will receive will be a “W” before the **course drop deadline** and a grade of “F” **after the course drop deadline**. If you feel that you are unable to complete the course successfully and you need to **drop this class**, please contact the [Registrar's Office](#) to initiate the drop process before the **Drop Deadline on April 1st**. If you cannot complete this course for whatever reason, please contact me. Disappearing without formally dropping a course or withdrawing from the University, will result in a zero on each assessment activity you miss thereafter and will ultimately result in you receiving a grade of “F” at the end of the semester.

INCOMPLETE GRADE POLICY: Incomplete grades may be requested only in exceptional circumstances after you have completed at **least half of the course requirements**. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

ELECTRONIC DEVICES POLICY: You must have access to an internet connected device to access course resources, participate in assessment items and to take Exams and Quizzes by using the appropriate tools within Blackboard.

TECHNICAL DIFFICULTIES POLICY: I strongly suggest that you submit your work with plenty of time to spare in the event that you have a technical issue with the course website, network, and/or your computer. I also suggest you save a copy of all submitted/uploaded work. If you are experiencing difficulties please contact UTEP's technical support and email if necessary.

Technical Support: Please follow this link for [Blackboard Student Orientation](#) to review/learn how to post assignments, participate in discussions, [take a test on Blackboard](#), review feedback/grades, etc. If you need technical support with Blackboard, please contact UTEP's Help Desk at (915)747-4357 (HELP), helpdesk@utep.edu. For help with equipment, internet access and tech support please visit <https://www.utep.edu/technologysupport/learningremotely.html>

TEST PROCTORING SOFTWARE POLICY: We will make use of **Respondus Lock Down Browser** and **Respondus Monitor** inside of Blackboard to promote **academic integrity**. You are encouraged to take the "practice exam" and learn more about how to use these programs prior to the first test. Please review the following guidelines:

- The assessments will only be available at the posted scheduled times.
- You may take the test at any time during the given exam window.
- A reliable Internet connection is essential to completing the exam. If you must go to a location to take the exam (such as the library), be sure to follow their health and safety requirements.
- You have one attempt to take the test. Once the exam-window closes, your answers will be saved, and no changes can be made.
- Respondus Lockdown Browser will require that all internet tabs are closed prior to the start of the test. Respondus Monitor requires a webcam and microphone.
- You will be required to show the webcam your student ID prior to the start of the test.
- Your face should be completely visible during the test. Blocking the camera will disable the test.
- No notes or textbook materials are permitted during the test. Respondus Monitor requires you to take a video of your surrounding area (desk, chair, walls, etc.)
- You should not have conversations with other people and/or leave and return to the area during the test. If you experience technical difficulties, make use of the microphone and describe the situation.

SCHOLASTIC INTEGRITY/ACADEMIC HONESTY:

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. Any form of academic dishonesty will not be tolerated. "Plagiarism" is the unattributed use of someone else's work – coming from a classmate's, a website's, even a teacher's from another course. In accordance with University regulations, scholastic dishonesty on a given assignment **will** be subject to disciplinary action and **will** be referred to the Office of Student Conduct and Conflict Resolution (OSCCR). **Dishonesty/cheating/plagiarizing may result in a zero on the assignment, an "F" in the course, or even suspension from the university.** If you need assistance with your assignments, please consult authorized sources of help. For more information on Scholastic Dishonesty and/or Plagiarism, consult the Handbook of Operating Procedures: Student Affairs, which is available in the Office of Student Life or visit [HOOP: Student Conduct and Discipline](#).

ACCOMMODATIONS POLICY ~ Center for Accommodations and Support Services (CASS): The University is committed to providing reasonable accommodations and auxiliary services. Students requiring unique accommodations **must** contact and register with the **CASS** office and make sure to **talk to the instructor at the beginning of the semester to discuss necessary arrangements**. The CASS office may be contacted at 747-5148, cass@utep.edu or go to Room 106 Union East Building.

COVID-19 Accommodations -Students are not permitted on campus when they have a positive COVID-19 test, exposure or symptoms. If you are not permitted on campus, you should contact me as soon as possible so we can arrange necessary and appropriate accommodations.

COVID-19 PRECAUTIONS: You must STAY AT HOME and REPORT if you (1) have been diagnosed with COVID-19, (2) are experiencing COVID-19 symptoms, or (3) have had recent contact with a person who has received a positive coronavirus test. Reports should be made at <http://www.screening.utep.edu>. If you know of anyone who should report any of these three criteria, you should encourage them to report. If the individual cannot report, you can report on their behalf by sending an email to COVIDaction@utep.edu.

For each day that you attend campus—for any reason—you must complete the questions on the UTEP screening website ([screening.utep.edu](http://www.screening.utep.edu)) prior to arriving on campus. The website will verify if you are permitted to come to campus. Under no circumstances should anyone come to class or campus when feeling ill or exhibiting any of the known COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, and alternative instruction will be provided. Students are advised to minimize the number of encounters with others to avoid infection. Wear face coverings when in common areas of campus or when others are present. You must wear a face covering over your nose and mouth at all times in this class. If you choose not to wear a face covering, you may not enter the classroom or other facilities. If you remove your face covering, you will be asked to put it on or leave. Students who refuse to wear a face covering and follow preventive COVID-19 guidelines will be dismissed from the class and will be subject to disciplinary action according to Section 1.2.3 Health and Safety and Section 1.2.2.5 Disruptions in the UTEP Handbook of Operating Procedures.

What you need to do to be successful in this course

Prepare in advance: In order to be successful, each student must be proactive in using all the online resources and **keeping up with announcements posted on Blackboard** and messages sent via email. This means that **you must refer to all the resources** (required textbook, reference materials and lecture videos), understand your homework, and complete any other assignment **BEFORE the deadline**.

Tips for Success in this class:

1. Be **organized**, keep your notes in order, make your own schedule and make sure to meet all weekly expectations to receive credit and to avoid falling behind.

2. **Visit the class Blackboard shell and read UTEP e-mail every day to avoid missing deadlines or announcements.** Use all available course resources.
3. It's your responsibility to **stay on schedule and prioritize your time.**
4. **Read** by following the topic sequence. This will help you get a better understanding when you watch the video lectures. As you read, **take notes** and make summaries in your own handwriting (research shows handwriting has a better effect on your memory). All of this will help you study for assessment activities.
5. Make sure to **watch all the recorded lectures** and take good notes. Use all posted course materials, they are there for a reason!
6. Be proactive and **meet all the deadlines.** Try to finish your **assignments early** (this will help in case something unexpected comes up). Make sure to understand how to solve these assignments as you may have a quiz about this content.
7. Comply with the equipment requirements necessary for online assessment. Take advantage of the "**practice quiz**" / "**practice test**" to **verify that your system is working correctly** before the actual time of the quiz or test. This will give you time to seek tech support and avoid additional stress.
8. Visit instructor during virtual office hours if you need assistance, or use e-mail to set up an appointment. Remember to also visit the discussion board and seek assistance from our Lab TAs.
9. Start your success by not falling behind! You need to **be proactive** about meeting your education goals. Fully understand the level of autonomy and self-motivation required to be successful in any online course.
10. Remember that the grade you get is the grade you earn. **It is up to you to monitor your own performance and adjust your efforts on a timely manner** if you find that you are falling behind on your grades.

UTEP Student Resources: Where to go for assistance

UTEP provides a variety of student services and support:

Technology Resources

- UTEP **Help Desk**: Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone at (915)747-4357 (HELP), email to helpdesk@utep.edu , go to their website, chat, or by visiting their physical or virtual offices.
- Please follow this link **[Blackboard Student Orientation](#)** to review/learn how to post assignments, access Blackboard Collaborate sessions (virtual office, live sessions), participate in discussion board, **[take a test on Blackboard](#)**, review feedback and grades. If you need technical support with Blackboard, please contact the Help Desk at (915)747-4357 or find **[BB tool instructions](#)** by clicking this link.

Academic Resources

- **UTEP Library:** Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- **University Writing Center (UWC):** Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- **Math Tutoring Center (MaRCS):** Ask a tutor for help and explore other available math resources.

Individual Resources

- **Military Student Success Center:** Assists personnel in any branch of service to reach their educational goals.
- **Center for Accommodations and Support Services:** Assists students with ADA-related accommodations for coursework, housing, and internships.
- **Counseling and Psychological Services:** Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

COVID-19 Resources

- UTEP required COVID-19 training <https://covidstraining.questionpro.com/>
- UTEP screening <https://screening.utep.edu>
- UTEP Counseling and Psychological Services: 747-5302 or CAPS@utep.edu
- UTEP Student Health and Wellness Center: <https://www.utep.edu/chs/shc/>
- UTEP COVID-19 website: <https://www.utep.edu/ehs/COVID-19/>
- El Paso Strong statistics website: <http://epstrong.org/>
- El Paso COVID 19 information website: <https://www.epcovid19.org/>
- Ciudad Juarez COVID-19 resources website: <https://www.juarezcovid19.com/>