Syllabus for EENG 2710 Section 002

University of North Texas, College of Engineering
Department of Electrical Engineering
EE2710: Digital Logic Design
Section 2: 3 Credit Hours Fall 2022

General course information. Instructor name, contact information as well as TA name and contact information are shown. Class meeting times are presented.

Instructor:	**Dr. Edgard Muñoz-Coreas**
Office Hours:	Tuesday 3:00-5:00pm. NTDP B230** or by appointment.
Contact:	Edgard.Munoz-coreas@unt.edu
Lecture:	Tuesday-Thursday 10:00-11:20am NTDP E264
Teaching Assistant:	Israel Koiku
TA Office Hours **TA Office** **TA Contact**	3:00-5:00pm Mon & Wed E 258 israelkoiku@my.unt.edu

- In the event the Instructors take ill or unforseen circumstances (such as COVID pandemics) course delivery may be temporarily modified as outlined in the Zoom Section of this syllabus

** If the instructor arrives late to office hours they may be extended at the discretion of the instructor.

Description:

The purpose of this course is to introduce you to digital computers and information processing systems. This course covers boolean algebra, principles and methodology of logic design, combinatorial circuit design, state elements and sequential logic circuits.

Prerequisite(s)

Engineering or engineering technology majors.

Corequisite(s)

EENG 2711 (which must be completed with a grade of C or better) for Biomedical Engineering (Bioinstrumentation track), Computer Engineering, and Electrical Engineering majors.

Textbook (required)

Fundamentals of Logic Design, 7th Enh. Ed., C. H. Roth Jr., L. L. Kinney, and E. B. John, Cengage Learning, Inc., 2021. ISBN: 978-1-337-62035-2. https://www.cengage.com/c/fundamentals-of-logic-design-enhanced-edition-7e-roth-jr/9781337620352/

Additional material, as required, shall be provided on Canvas.

Course Topics

- Number Systems and Digital Logic Gates
- Boolean Algebra, Switching Functions and Canonical Forms
- Combinational Circuit Minimization, Analysis, and Synthesis
- Sequential circuits elements and sequential logic circuits
- Modular Sequential Logic, Counters and shift registers
- Analysis and Design of synchronous sequential circuits

Learning Objectives:

The objective of this course is that, by course's end, the student should be able to:

1. Identify a digital systems and understand its advantages. Differentiate a digital system from an analog one.
2. Know non-decimal radix number systems, radix arithmetic and Boolean algebraic principles.
3. Utilize Boolean algebra to the design and simplification of digital logic.
4. Analyze and synthesize combinatorial logic systems
5. Analyze and synthesize sequential logic systems
6. Given problem requirements, identify and design a complete digital system from basic building blocks.

Course Learning Outcomes

The Learning Outcomes for this course are as follows:

1. Digital and Analog Systems: Basic Concepts and Historical Perspective
2. Number Systems and Digital Logic Gates
3. Boolean Algebra, Switching Functions and Canonical Forms
4. Combinational Circuit Minimization, Analysis, and Synthesis
5. Sequential circuit elements and sequential logic circuits
6. Modular Sequential Logic, Counters and shift registers
7. Analysis and Design of synchronous sequential circuits

These objectives correspond to ABET Criterion 3. Student Outcomes items 1 and 7 which are as follows:

- an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
- an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Canvas

Course interaction shall be through Canvas. Course materials shall be provided through canvas. Modules containing reference materials and worked problems shall be presented through Canvas weekly. All homework assignments shall be administered through Canvas. *It is expected that students shall study the module content*. In the event of a suspected misprint or error please notify the instructors right away so it can be examined and, where applicable, corrected.

Students should immediately report any technical problems to the UNT University Information Technology Student Help Desk (helpdesk@unt.edu or 940.565.2324) as well as the instructor. The instructor and the UNT University Information Technology Student Help Desk Team will work with the student to resolve any issues at the earliest possible time.

Grading

The Grading scale for this course is as follows:

Grade scale for the course.

F	D	C	B	A

≤ 59.99%	60.00% - 69.99%	70.00% - 79.99%	80.00% - 89.99%	90.00% ≤

The grading breakdown for this course is as follows:

Breakdown of course grade for this course

Breakdown of Grading		
Midterms (2):		50% (25% apiece)
Final:		25%
Homework:		25%

Grading procedure for the course is outlined as followed:

- Homework shall be graded using the scale shown in the Table . No curving shall be applied.
- Examinations shall be graded using the scale shown in the Table. *Students whose test scores are each a C or higher should receive a passing grade for the examination component of the final grade at the end of computation. The calculation of the final grade is presented shortly.*
- *Extra credit opportunities for this course are as follows. No additional opportunities for extra credit will be offered.*
    - Students with no more than two unexcused absences from lecture shall receive 1% extra credit on their final grade. Duration of attendance and number of missed lectures shall be used in determining if a student qualifies for extra credit. Attendance shall be collected in-class.
    - Students who complete the SPOT survey shall receive *20 points* added to the homework component of their grade. To receive credit, students shall be required to submit proof of survey completion. An assignment leveled "SPOT survey completion" shall be made available for the submissions. ***Failure to complete the SPOT survey shall not lower your homework score.***

Additional Comments

Any and all curving shall be applied to the final raw scores for the course. The final raw score shall be calculated as follows:

$$Grade = (Midterm_1 + Midterm_2) \cdot 0.25 + Final \cdot 0.25 + Homework \cdot 0.25 + Attendance \cdot 0.01$$

Curving shall be applied to each midterm and final examination as follows. For each examination, the calculated mean shall correspond to a curved score of 70%. The absolute value of difference between 70% and the computed mean shall determine how much the raw scores shall be elevated. So, given a test score of 58%, should the average be a 65%, the final adjusted result shall be a 63% which is a D.

So students can estimate their final grades, *the average for each examination shall be reported when grades are returned.*

In summary: *Students who (i) have examination scores at or above the reported means and (ii) achieve high marks on homework and attendance should receive a passing grade (i.e. C or better) for the course at the end of computation.*

Course Policies

- Any and all ADA accommodations shall supersede these policies where applicable.

Homework

Unless stated otherwise in writing, homework shall be graded no later than one week after the due date. Worked solution sets shall be made available for review no later than one week after the due date and no sooner than three days after the due date. Homework is due before midnight on the due date. Homework shall

be submitted through Canvas. *Homework submitted one day late will be penalized* 50%. *Homework submitted two or more days late will receive a zero.* Excuses for homework shall be permitted only for excused absences outlined in UNT policy 06-039 (Links to an external site.). After an assignment is returned, you have up to two weeks to contest any grade issues.

Communication

All email communications to the Instructors (TA and Professor) *should include the course name and section number in the subject line.* This guarantees your messages shall not be dismissed as spam. The instructors shall only respond to messages from UNT email accounts or from UNT canvas email.

Midterm and Final Examinations

Examinations shall take place during regular class time. Students shall have the whole 1 hour and 20 minutes to complete the examination. Students shall be able to make use of both sides of a 8.5 x 11 sheet for notes. Examinations shall be closed-book and all computers shall be off. This information shall be included in the instructions for each midterm.

Examination grades shall be returned as soon as possible after the completion of the test. A worked solution to a version of the examination shall be provided no earlier than two days after all students have taken the examination. There shall be a examination review for each test. The review shall take place before the examination during either (i) regular class time and/or (ii) the regularly scheduled office hours. Excuses for examinations shall be permitted only for excused absences outlined in UNT policy 06.039. After an examination is returned, you have up to two weeks contest any grade issues.

Lecture and Attendance Policy

All students are strongly encouraged to attend lecture. Students should examine module content and readings outside of class. *In lecture I shall assume students have examined and are familiar with the content in the course modules*. Where appropriate, the instructors may recommend students have specific course pages for reference. Questions are highly encouraged. At the instructor's discretion, questions posed during class may be deferred to the end of class or to Office Hours.

Students with no more than two unexcused absences from lecture shall receive 1% extra credit on their final grade. All excused absences are outlined in UNT policy 06-039. Attendance shall be collected in-class. *Please return the attendance sheet to the instructors by the end of class.* If (i) an attendance sheet was issued at the beginning of class and (ii) we do not receive the filled out attendance sheet by the end of the class, the instructors, at their discretion, may deduct a permitted unexcused absence from each member of the class. If the instructors do not produce an attendance sheet before the end of a given lecture, then all students shall be considered present for that day.

As a courtesy to the instructors and any classmates with fragrance allergy or sensitivities, students are requested to refrain from wearing scented products such as perfume/colognes, hair products, cosmetics, or scented lotions while attending class. The instructors reserve the right to ask a student who uses such products to move to the rear of the classroom should the scent(s) trigger irritation. To avoid fragrance sensitivity reactions, the instructors may use measures such as leaving classroom doors open or running fans.

Course Evaluation

Student Perceptions of Teaching (SPOT) is the student evaluation system for UNT and allows students the ability to confidentially provide constructive feedback to their instructor and department to improve the quality of student experiences in the course.

Students will receive an email from “UNT SPOT Course Evaluations via IASystem Notification” (no-reply@iasystem.org) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the SPOT website (http://spot.unt.edu/) or email spot@unt.edu.

Students who complete the SPOT survey shall receive *20 points* added to the homework component of their grade. To receive credit, students shall be required to submit proof of survey completion. An assignment leveled "SPOT survey completion" shall be made available for the submissions. ***Failure to complete the SPOT survey shall not lower your homework score.***

Academic Integrity Standards and Consequences

According to UNT Policy 06-003 (Links to an external site.), Student Academic Integrity: academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University. *Pursuant UNT policy 06-003, Students found guilty of academic dishonesty shall receive a F for the course and may be subject to additional discipline.*

ADA Accommodation Statement

The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking reasonable accommodation must first register with the Office of Disability Access (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with a reasonable accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. *You may request reasonable accommodations at any time*; however, ODA notices of reasonable accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of reasonable accommodation for every semester and must meet with each faculty member prior to implementation in each class. Students are strongly encouraged to deliver letters of reasonable accommodation during faculty office hours or by appointment. Faculty members have the authority to ask students to discuss such letters during their designated office hours to protect the privacy of the student. For additional information, refer to the Office of Disability Access (Links to an external site.) website. You may also contact ODA by phone at (940) 565-4323.

Acceptable Student Behavior

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn shall not be tolerated. Students engaging in unacceptable behavior will be directed to leave the classroom. The instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The UNT's Code of Student Conduct can be seen at (https://deanofstudents.unt.edu/conduct).

Emergency Notification & Procedures

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

Sexual Assault Prevention

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at SurvivorAdvocate@unt.edu or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at oeo@unt.edu or at (940) 565 2759.

Employees who, in the course and scope of their authorized duties, witness or receive information regarding the occurrence of an incident that the employee reasonably believes constitutes sexual misconduct and is alleged to have been committed by or against a person who was a student enrolled at or an employee of the institution at the time of the incident shall promptly report the incident to the Title IX Coordinator in the Office of Equal Opportunity or a deputy Title IX Coordinator. The report must include all information concerning the incident known to the reporting person that is relevant to the investigation and, if applicable, redress of the incident, including whether an alleged victim has expressed a desire for confidentiality in reporting the incident. For additional details please see UNT policies 16.005 and 16.007

Class Recordings & Student Likenesses

Class recordings are the intellectual property of the university or instructor and are reserved for use only by students in this class and only for educational purposes. Students may not post or otherwise share the recordings outside the class, or outside the Canvas Learning Management System, in any form. Failing to follow this restriction is a violation of the UNT Code of Student Conduct and could lead to disciplinary action.

Syllabus Change Policy

The instructor(s) reserve the right to update or revise the syllabus content. Any and all changes you shall be informed via (i) announcement, (ii) class-wide email. The purpose of any revision shall be outlined. The revised syllabus shall supersede any previous versions and take immediate effect. Any and all ADA accommodations shall supersede revised syllabus policies where applicable.

Zoom Policies

Appointments to see the instructors can be handled remotely. For these appointments, the Canvas Zoom module shall be used. In the event class is to be delivered in remote format, the Canvas Zoom module shall be used as well. Canvas shall be used for all submissions and course interactions. The following outlines Zoom policy for this course:

All students are asked to please make sure their Zoom ID includes their first and last names. Zoom IDs that use nicknames, aliases, device names, etc. shall be assumed to not be an enrolled student in the course and not allowed into the lecture meeting. Usage of any recorded remote lectures will be governed by the recording policy in this syllabus and all relevant UNT policy

For the inevitable technical issue, students should immediately notify UNT University Information Technology Student Help Desk (helpdesk@unt.edu or 940.565.2324) as well as the instructor. The instructor and the UNT University Information Technology Student Help Desk Team will work with the student to resolve any issues at the earliest possible time.