Course Syllabus – Spring 2022

COVID-19 Guidelines and Resources

The following guidelines and resources outline expectations for students and instructors of record during the Spring 2022 semester.

Instructor Resources

Syllabi Language for Faculty: Masks and Vaccinations
For faculty who would like to include information in your syllabus about the university's policy on masks and vaccinations, you may use the developed language shown below. The inclusion of this language in your syllabus is not required and is at the discretion of the instructor of record. Please remember that Texas Governor Greg Abbott's Executive Order GA-38 prohibits us from mandating vaccines and face coverings for UT Dallas employees, students and members of the public on our campus. However, we strongly encourage all Comets to get vaccinated and wear face coverings as recommended by the CDC. The University of Texas at Dallas (UT Dallas) will continue to share more information and guidance during the semester.

Classroom Safety and COVID-19 To help preserve the University's in-person learning environment, UT Dallas recommends the following:

Adhere to the University's CDC Updated Guidelines issued on July 30, 2021. All Comets are strongly encouraged to wear face coverings indoors regardless of vaccination status.

Accommodations for Students Who Miss Class for Reasons Unrelated to COVID-19
Individual faculty maintain their discretion on whether and how to accommodate student absences unrelated to COVID-19.

Accommodations for Students Who Must Isolate or Quarantine Due to COVID-19
To keep the UT Dallas community as safe as possible, the University requires students who test positive for COVID-19 or who are close contacts as determined by the campus contact tracing program to isolate or quarantine as applicable. Faculty will be notified by the Dean of Students' Office if a student in their class has been required to isolate (positive case) or quarantine (exposed). Faculty must make lectures available for those students during the period the students must isolate or quarantine. Faculty who need assistance with providing these students access to course content can contact the eLearning Team at elearning@utdallas.edu. Faculty have the discretion to set an attendance policy

for their in-person meetings, but the absences due to COVID-19 cannot be counted against an isolated or quarantined student.

Verifying COVID-19 Isolations or Quarantines
Students need to self-report COVID-19 positive results or exposures via an online form so that university campus tracers can verify, record, and take necessary campus precautions. When faculty are notified by students rather than by the Dean of Students' Office that the students are isolating or quarantining, the faculty should remind students to self-report via the form; students should not attend class until cleared by campus tracers.

Vaccinations are widely available, free and not billed to health insurance. The vaccine will help protect against the transmission of the virus to others and reduce serious symptoms in those who are vaccinated. You are encouraged to get a COVID-19 vaccine and register your vaccination status through the voluntary vaccine report form. If you have received your COVID-19 booster, you may register your status through the voluntary COVID-` booster reporting form.

Proactive Community Testing remains an important part of the university's efforts to protect our community. Tests are fast and free. Please check the Comets United webpage for additional information.

Student Safety remains an important part of the UT Dallas' efforts to protect our community. All students will adhere to the Comet Commitment. Unvaccinated Comets will be expected to complete the mandatory Required Daily Health Screening. Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the Student Code of Conduct – UTSP5003. All students are encouraged to read the Recommendations for Students Returning to Campus issued on August 2, 2021.

Visit Comets United webpage to obtain the latest information on the University's guidance and resources for campus health and safety.

Previous Campus Communications: a list of university announcements made in 2020-2022.

Registrar's Intranet: please log in with your UTD NetID and password to access this site. Information that faculty need about grading, scheduling, and other essential aspects of our responsibilities related to teaching are made available and updated regularly in the Registrar's Intranet. This source of information can only be accessed by logging in with your UTD NetID and password. Many important faculty questions are answered here, and this is information that faculty members are expected to know and understand.

FERPA Guidelines: you will be asked to log in before you access the FERPA Guidelines webpage on the Registrar's Intranet. If faculty have additional questions

about FERPA guidance, please contact the Office of the Registrar at records@utdallas.edu for the proper student consent forms and further instructions. NOTE: Class recordings from prior semesters may be used as long there are no identifiable student information due to FERPA because instructors will need students' written consent first. Please review your previous class recordings for identifiable student information before using them in the current term. For additional guidance, contact the Office of the Registrar.

Honorlock: Online proctoring tool will be available for fully online courses and for classes with enrolled international students who are not yet in the United States.

UT System Resources for Creating Accessible Course Content: designed to assist faculty with developing course content

Student Resources

Students who have tested positive for COVID-19 or may have been exposed should not attend class in person and should instead follow required disclosure notifications as posted on the university's website (see "Student Safety" protocols).

COVID-19 Resources
Comets United webpage: check frequently

FAQ: check out the FAQs and reach out to your instructor or academic advisor if answers are not included

Student Resources: a variety of resources are available to help students to obtain counseling, health care, and academic support.

Course Information

CS/SE 4341-502
Digtal Logica and Computer Design
Spring 2022

Time: Tuesday, Thursdays, 5:30 pm to 6:45 pm
Location:
Before February 4th, Online in MSTeams
After February 4th, ECSS 2.311
Subject to Change

Professor Contact Information

Instructor: Dr. Eric William Becker
Telephone: (972) 883-3862
MS-Teams: Becker, Eric
Email: Eric.Becker@utdallas.edu

Office Hours:
Monday, 1:00pm to 3:00 pm
Wednesday, 1:00pm to 3:00 pm
Other times by appointment

Office Location:
Before Feburary 4th, Online in MS Teams
After February 4th, Room ECSS 3.407

Please, if you are sending Dr. Becker an e-mail, please start the subject line with the ***course number*** and ***section***.

Example:
To: Eric.Becker@utdallas.edu
Subject: CS4341-502: Logic Question

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Prerequisites:
(CE 2310 or EE 2310) Introduction to Digital Systems or (CS 3340 or SE 3340 or TE 3340) Computer Architecture and PHYS 2326. Electromagnetism and Waves

Corequisite:
(CS 4141 or TE 4141). (Same as TE 4341) Digital Systems Laboratory to accompany CS 4341.

The purpose of this laboratory is to give students an intuitive understanding of digital circuits and systems. Laboratory exercises include construction of simple digital logic circuits using prototyping kits and board-level assembly of a personal computer. Students that have credit for CS 2110 have credit for this course and cannot get additional credit for this course.

Restrictions:
Credit cannot be received for both courses, (CS 4341 or TE 4341) and (CE 3320 or EE 3320). Students that have completed CS 4340 cannot get credit for this course.

Course Description

CS 4341 - Digital Logic and Computer Design (3 semester credit hours) Boolean algebra and logic circuits; synchronous sequential circuits; gate level design of ALSU, registers, and memory unit; register transfer operations; design of data path and control unit for a small computer; Input-Output interface.

Student Learning Objectives/Outcomes

Students will be working problems and employing methods, including but not limited to:

- CLO1: Ability to analyze, minimize and design gate-level combinational logic circuits using Boolean algebra and 3 and 4 variable Karnaugh Maps.
- CLO2: Ability to analyze and design simple synchronous sequential circuits
- CLO3: Ability to analyze, design and utilize digital logic components such as adders, multiplexers, decoders, registers, and counters.
- CLO4: Ability to understand RAM and ROM memory components, and utilize these in digital logic design

In addition, students will study and become aware of

- CLO5: Ability to design computer components such as Arithmetic-Logic-Unit (ALU) and data path
- CLO6: Ability to understand the basics of hardware description languages such as Verilog or Virtual Hardware Design Language (VHDL).

Required Textbooks and Materials

- Mano, M. Morris and Ciletti,, Michael D. , Digital Design, Pearson, 6th Edition, 2018
- Some form of Verilog: Recommend using SystemVerilog or iVerilog (Freeware)

Suggested Course Materials

- Dally. W., Harting, R.C., Digital Design – A System Approach, Cambridge University Press, 2012
- Harris, D. Harris, S., Digital Design and Computer Architecture, Morgan Kauffman, Second edition, 2013

Assignments & Academic Calendar

As Instructor for this course, I reserve the right to change this calendar as I see fit-Dr. Becker

Date	Day	Lectures	Assignments
18-Jan	Tue	Syllabus & Socrates	
20-Jan	Thu	Digital Abstraction & Binary Numbers	
21-Jan	Fri		
25-Jan	Tue	Hardware Design Langauge & Verilog	Project, Part 1 Assigned
27-Jan	Thu	Boolean Algebra & Logic Gates	
28-Jan	Fri		
1-Feb	Tue	Gate Minimization: Definitions	Quiz #1 Assigned
3-Feb	Thu	Gate Minimizaton: 3-Variable	
4-Feb	Fri		Quiz #1 Due
8-Feb	Tue	Gate Minimization: 4-Variable	Project, Part 2 Assigned
10-Feb	Thu	Combinational Logic 1: Definitions	
11-Feb	Fri		Project, Part 1 Due
15-Feb	Tue	Combinational Logic 2: Arithmetic	Quiz #2 Assigned
17-Feb	Thu	Combinational Logic 3: Controls	
18-Feb	Fri		Quiz #2 Due
22-Feb	Tue	Sequential Logic 1: Definitions	Projet, Part 3 Assigned
24-Feb	Thu	Sequential Logic 2: Flip-Flops	
25-Feb	Fri		Project, Part 2 Due
1-Mar	Tue	Sequential Logic 3: The Clock	Quiz #3 Assigned
3-Mar	Thu	Counter-Timer 1: Definitions	
4-Mar	Fri	Counter-Timer 2: Types	Quiz #3 Due
8-Mar	Tue	Counter-Timer 3: Abstract Datapaths	
10-Mar	Thu	Finite State Machine	
11-Mar	Fri		Project Part 3 Early Bonus
15-Mar	Tue	Spring Break	
17-Mar	Thu	Spring Break	
18-Mar	Fri	Spring Break	

Assignments & Academic Calendar (Continued)

As Instructor for this course, I reserve the right to change this calendar as I see fit-Dr. Becker

Date	Day	Lectures	Assignments
15-Mar	Tue	Spring Break	
17-Mar	Thu	Spring Break	
18-Mar	Fri	Spring Break	
22-Mar	Tue	Memory 1	Project, Part 4 Assigned
24-Mar	Thu	Memory 2	
25-Mar	Fri		Project Part 3 Due
29-Mar	Tue	Memory 3	
31-Mar	Thu	RTL 1: Definition	
1-Apr	Fri		
5-Apr	Tue	RTL 2: Notation	Bonus Discussion
7-Apr	Thu	RTL 2: Algoritmic State Machine	
8-Apr	Fri		Project, Part 4 Due
12-Apr	Tue	Timing Constraint 1	
14-Apr	Thu	Timing Constraint 2	
15-Apr	Fri		
19-Apr	Tue	Timing Constraint 3	
21-Apr	Thu	Pipeline 1	
22-Apr	Fri		
26-Apr	Tue	Pipeline 2	Demonstrations
28-Apr	Thu	Pipeline 3	Demonstrations
29-Apr	Fri		
3-May	Tue	Review	Demonstrations
5-May	Thu	Review	Demonstrations
6-May	Fri		
To Be Announced		Final Exam	

Grading Policy

The semester will be scored on a scale from 0 to 100 points. Dr. Becker does not curve. Do not bother to ask

Assignment Weights

Assignment	Weight
Project, Phase 1: Gates	10.0%
Project, Phase 2: Combinational	10.0%
Project, Phase 3: Sequential	10.0%
Project, Phase 4:Application	10.0%
Quiz #1: Fundamentals	5.0%
Quiz #2: Gate Minimization	10.0%
Quiz #3: Combinational Logic	10.0%
Peer Report 1	2.5%
Peer Report 2	2.5%
Peer Report 3	2.5%
Peer Report 4	2.5%
Final Exam	25.0%
Bonus	5.0%
Total	105.0%

Grading Scale

Score	Grade
100 and Above	A+
95-99	A
90-94	A-
87-89	B+
	B
80-82	B-
77-79	C+
73-76	C
70-72	C-
60-69	D
Below 60	F

Key Grade Dates

Date	Assignment
Feburary 4th	Quiz #1 Due
February 11th	Project, Part 1 Due
February 18th	Quiz #2 Due
February 25th	Project, Part 2 Due
March 4th	Quiz #3 Due
March 11th	Project Part 3 Early Bonus
March 25th	Project Part 3 Due
To Be Announced	Final Exam

Course & Instructor Policies

Expectations of Student Skills

All students are expected to be aware of how to:

- upload files to Blackboard
- how to create a PDF
- how to download and install software on a computer
- how to walk through an algorithm
- how to write a computer program

and most importantly:

- how to read a problem
- how to read the entire problem

Make-Up Exams

The current assignment plan for this semester is to have three, week-long online quizzes and one final exam. If a student cannot complete the quiz for an acceptable reason, then a makeup will be assigned during the course of the regular semester. Asking for all three quizzes on the last week of the semester is not accpetable. If the final exam is missed, the student must take an incomplete and take a make-up exam in the next semester.

Late work

If a situation occurs on campus, then assignments will be extended at the discretion fo the instructor.
If an error occurs on the Blackboard, then the assignment will be extended.
If a member of a cohort does not turn in their project work on time, and the rest of their cohort will vouch for them, then the assignment will be accepted.
Otherwise, the grade will be a zero.

Extra Credit

Dr. Becker typically includes an extra credit feature on the project or an extra question on the exams. ***Anything offered extra in this course will be the same opportunity for all students. No single student gets an individual extra credit assignment outside of the syllabus policies.***

Re-grade Policy

Questions about the grade on assignments marked by the TA or Grader should be submitted to the TA or Graders first. If they are unable to resolve the issue, the material may be submitted to the Instructor. Questions about the grade on assignments marked by the Instructor should be submitted to the Instructor first.

Regrade does not mean assignments receive a curve, or instant extra points, or an automatic A. Re-grading means the assignment will be fully re-graded. Regrading means that the paper can either gain points, or lose points, or stay the same based on the outcome.

Extraneous Material

Dr. Becker has a very bad habit of allowing students to ask off-topic questions...and then putting the off-topic questions on quizzes and exams. Anything covered in class is fair game, including this syllabus.

Cultural Background

Dr. Becker will sometimes ask the classroom for a topic for a sample problem. Typical Comets tend to ask for Star Wars, Star Trek, Lord of the Rings, or even Spongebob Squarepants. These pop culture references may be used for vocabulary of a problem, but some students worry they have to know these references. Math and logic are not altered by changing the variable name. It will be fine.

Science is Dispassionate

Science, Engineering, and Mathematics are dignified disciplines. Pleading for grades is unacceptable for this course. Bargaining for grades is unacceptable for this course.

Inappropriate behavior is not acceptable

This course is a lecture course at a branch of the University of Texas. The instructor does not care about the policies of previous courses, previous universities, or previous nations. The argument that a student's behavior was acceptable in another instructor's course or institution does not apply to the current course.

Formal Notice: No form of bias is permitted in this course, including the use of crude humor. Anyone harassing the instructor, grader, or fellow student with inappropriate comments will fail the course. This includes references written into computer programs, answering "joke" emails in class, or playing inappropriate videos. The instructor will decide what is inappropriate.

Attendance Policy

Due to the pandemic, the Attendence will not be taken for the first three weeks of the semester. Dr. Becker will start taking attendance once campus-wide policies are confirmed.

The departmental attendance policy states that a student cannot miss class more than three lectures in a row, to the loss of a letter grade. A student missing four lectures in a row will fail the course.

Why take attendance? Attendance may be used by Dr. Becker as a tie-breaker on the final grade, to decide if an extension is warranted, or to resolve a dispute within a cohort, or to confirm participation of the student due to their scholarshps, loans, visas, or other university requirements.

Class Materials

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Classroom Conduct Requirements Related to Public Health Measures

UT Dallas will follow the public health and safety guidelines put forth by the Centers for Disease Control and Prevention (CDC), the Texas Department of State Health Services (DSHS), and local public health agencies that are in effect at that time during the Spring 2022 semester to the extent allowed by state governance. Texas Governor Greg Abbott's Executive Order GA-38 prohibits us from mandating vaccines and face coverings for UT Dallas employees, students, and members of the public on campus. However, we strongly encourage all Comets to get vaccinated and wear face coverings as recommended by the CDC. Check the Comets United: Latest Updates webpage for the latest guidance on the University's public health measures. Comets are expected to carry out Student Safety protocols in adherence to the Comet Commitment. Unvaccinated Comets will be expected to complete the Required Daily Health Screening. Those students who do not comply will be referred to the Office of Community Standards and Conduct for disciplinary action under the Student Code of Conduct – UTSP5003.

Class Attendance

The University's attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes. Faculty have the discretion to set an attendance policy for their in-person meetings, but the absences due to COVID-19 cannot be counted against a quarantined student.

Class Participation

Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

The instructor may record meetings of this course. These recordings will be made available to all students registered for this class if the intent is to supplement the classroom experience. If the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please see http://go.utdallas.edu/academic-support-resources.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please review the catalog sections regarding the credit/no credit or pass/fail grading option and withdrawal from class.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.