Syllabus

Course Information

Course Information

Course Number: CSCE 12
Course Title: Computer
Section: 500, 501, 502
Time: TR 8:00AM to 9:15AM
Location: ZACH 244

Lab: Tuesday and Thursday 09:35AM - 10:25AM, 12:35AM - 12:25PM, and 12:45PM - 1:35PM
Location: ZACH 590

Credit Hours: 4

Instructor Details

Instructor: Abdullah Muzahid
Office: Peterson 206
Phone: 979-458-1059
E-Mail: abdullah.muzahid@tamu.edu

Office Hours: TR 3.00 PM to 4.00 PM

TA Details

Name: **Farabi Mahmud**
Email: **farabi@tamu.edu (mailto:vahidjanfaza@tamu.edu)**

Office Hours and Location: TBA

Course Description

Computer systems from programmer's perspective including simple logic design, data representation and processor architecture, programming of processors, memory, control flow, input/output, and performance measurements.

Course Prerequisites

CSCE 211 - Data Structures and Algorithms

Required Book

- Randal Bryant and David O'hallaron, "Computer Systems - A Programmer's Perspective", Third Edition
- M. Morris Mano, Charles R. Kime and Tom Martin, "Logic and Computer Design Fundamentals", Fifth Edition

Course Learning Outcomes

The goal of this course is to provide the student with a working knowledge of different methods for logic representation, manipulation, and optimization, for both combinational and sequential logic. At the end of the course the student should be able to view the design of digital systems from a new perspective and have an understanding of several fundamental concepts that can be applied to a wide variety of digital design problems. List one or more learning outcomes for the course.

Individual Course Objectives:
At the end of this course, students should:

- Understand the organization of a computer system including the CPU datapath, CPU control, and memory systems
- Understand the impact of semiconductor technology on computer design and architecture.
- Understand the basics and principles of instruction set design.
- Be familiar with programming using an assembly level language.
- Understand the impact of instruction sets on hardware design.
- Be familiar with designing datapaths for a processor.
- Understand the implications of branch instructions on program flow and hardware design.
- Understand the role of compilers and high-level languages in programming.
- Be familiar with designing control circuitry for a basic processor.
- Understand the differences in single-cycle/multicycle design of processors.
- Be familiar with processor pipelining.
- Understand basics of memory technology, registers, SRAM, DRAM.
- Understand the memory architectures including cache architectures.

Grading Policy

Breakdown:

Exams (2 Exams)	40%

Labs	35%
Quizzes	15%
Attendance	5%

Grading Scale:

A: 90-100%
B: 80-89%
C: 70-79%
D: 60-69%
F: 0-59%
Note: in the event that the average overall grade of all students lies below a 79% there will be a curve on the overall grade. I will not curve the individual exams and assignments.

Attendance:

Students are expected to attend and be active discussion participants during the lectures (answering questions posed, asking questions, commenting etc.). Students who attends less than 50% lectures will receive a 0 for this part of their grade.

Exams:

There will be two exams. The second exam will be comprehensive, but with an emphasis on the material covered since the first exam.

Tentative Test schedule:
Exam 1 – **Oct 07, 2022 (class time)**
Exam 2 – **Dec-12-2022 (1pm to 3pm)**

Assignments/Quizzes:

Rather than traditional homework, this course will rely upon a series of on-line quiz assessments. The goal of these quizzes will be to test your knowledge of the lecture material and pinpoint which lectures you should go back and review on-line. There will be one quiz for each week, this quiz must be completed prior to the next week's lecture.

Students may retake the quiz as many times as desired between its release and the next lecture. **If the quiz is submitted in the same day as the due time, it will be graded with full credit. If it is delayed by few days (up to a week), you will get 50% grade. Otherwise, you will get 0.**

The TAMU Canvas system will be used for all quiz submissions.

Labs:

The course will have six or seven labs (tentative). Generally, labs and demos must be completed in one or two week following the lab's introduction. Late labs will have 20% of the points deducted for being late up to 1-week. If a lab and/or demo is late for more than a week then, a grade of 0 will be assigned.

Lectures:

Lectures will be in person in the classroom. All students are expected to be active participants during lecture.

Course Topics/Schedule (tentitive):

Weeks: Topic

Week 1: Introduction to digital logic design

Week 2, 3: Logic design basics and combinatorial circuit design

Week 4, 5: Sequential Logic

Week 6 - 11: Assembly Language Programming

Week 12 - 15: Processor Design

Late Work Policy

See above for late policy on Quizzes and Labs. Work submitted by a student as makeup work for an excused absence is not considered late work and is exempted from the late work policy.

University Policies

This section outlines the university level policies. The TAMU Faculty Senate established the wording of these policies.

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to **Student Rule 7** **(https://student-rules.tamu.edu/rule07/)** in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to **Student Rule 7** **(https://student-rules.tamu.edu/rule07/)** in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (**Student Rule 7, Section 7.4.1** **(https://student-rules.tamu.edu/rule07/)**).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (**Student Rule 7, Section 7.4.2** **(https://student-rules.tamu.edu/rule07/)**).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (**See Student Rule 24** **(https://student-rules.tamu.edu/rule24/)**.)

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (**Section 20.1.2.3, Student Rule 20** **(https://aggiehonor.tamu.edu/Rules-and-Procedures/Rules/Honor-System-Rules)**).

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at **aggiehonor.tamu.edu** **(https://aggiehonor.tamu.edu/)**.

***[NOTE**: Faculty associated with the main campus in College Station should use this Academic Integrity Statement and Policy. Faculty not on the main campus should use the appropriate language and location at their site.]*

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources in the Student Services Building or at (979) 845-1637

or visit **disability.tamu.edu (https://disability.tamu.edu/)**. Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

***[NOTE**: Faculty associated with the main campus in College Station should use this Americans with Disabilities Act Policy statement. Faculty not on the main campus should use the appropriate language and location at their site.]*

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see **University Rule 08.01.01.M1 (https://rules-saps.tamu.edu/PDFs/08.01.01.M1.pdf)**):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, you will be able to control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with **Counseling and Psychological Services (https://caps.tamu.edu/)** (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's **Title IX webpage (https://titleix.tamu.edu/)**.

***[NOTE**: Faculty associated with the main campus in College Station should use this Title IX and Statement on Limits of Liability. Faculty not on the main campus should use the appropriate language and location at their site.]*

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in proper self-care by utilizing the resources and services available from Counseling & Psychological Services (CAPS). Students who need someone to talk to can call the TAMU Helpline (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline

COVID-19 Guidance

Please follow the university guidance for COVID-19. The latest guidance is here

COVID 19 Guidance **(https://covid.tamu.edu/)**