

## COSC 3343-110-CRN 80392 Computer Architecture

Online

Fall 2023

Texas A&M University-Central Texas

### COURSE DATES, MODALITY, AND LOCATION

This course meets online (16 weeks of the Fall of 2023), with all materials made available online using the TAMUCT Canvas Learning Management System: [<https://tamuct.instructure.com>]. All announcements regarding homework assignments, class tests, and midterm/final exams will be posted on Canvas. Students are expected to access the Canvas course page regularly to get any updates regarding this course. They can also install the Canvas student app on their phone.

### INSTRUCTOR AND CONTACT INFORMATION

**Instructor:** Abhijit K Nag, Ph.D.

**Phone:** (254) 519- 5933 (COBA office)

**Email:** Canvas Inbox. If Canvas is not available, email: [aknag@tamuct.edu](mailto:aknag@tamuct.edu)

### Office Hours:

I am available for students on an appointment basis. Send me an email ([aknag@tamuct.edu](mailto:aknag@tamuct.edu)) to schedule an appointment to meet.

### Student-instructor interaction:

Students are encouraged to send all course-related correspondence to the Canvas email message. Students can meet me during regular office hours (mentioned above) or by appointment to discuss any course related issues.

**SAFEZONE.** SafeZone provides a public safety application that gives you the ability to call for help with the push of a button. It also provides Texas A&M University-Central Texas the ability to communicate emergency information quickly via push notifications, email, and text messages. All students automatically receive email and text messages via their myCT accounts.

Downloading SafeZone allows access to push notifications and enables you to connect directly for help through the app.

You can download SafeZone from the app store and use your myCT credentials to log in. If you would like more information, you can visit the [SafeZone](http://www.safezoneapp.com) website [[www.safezoneapp.com](http://www.safezoneapp.com)].

To register SafeZone on your phone, please follow these 3 easy steps:

1. Download the SafeZone App from your phone store using the link below:
  - o [iPhone/iPad](https://apps.apple.com/app/safezone/id533054756): [<https://apps.apple.com/app/safezone/id533054756>]

- [Android Phone / Tablet](#)  
[<https://play.google.com/store/apps/details?id=com.criticalarc.safezoneapp>]
- 2. Launch the app and enter your myCT email address (e.g. {name}@tamuct.edu)
- 3. Complete your profile and accept the terms of service

**For updates on COVID information**, please monitor the University [website](#)  
[<https://www.tamuct.edu/covid19/>]

## **COURSE INFORMATION**

### **Course Overview and description:**

Hardware and software structures found in modern digital computers. Instruction set architecture, hardwired design of the processor, assembly language programming, microprogramming, I/O and memory units, analysis of instruction usage, and hardware complexity. Prerequisite(s): COSC 2436 or CIS 3332 or CIS 3333 or permission of department chair.

### **Course Objective:**

#### **Student Learning Outcomes:**

Students taking this course will be able to:

1. Students are capable of designing and simulate components with discrete logic elements.
2. Students are capable of drawing a schematic of a basic computer system and can provide an accurate description of each element on the schematic.
3. Students are able to write a simple assembler language program, and can explain the function of each instruction.
4. Students can describe the internal storage format of data/information.

**Competency Goals Statements (certification or standards): None**

#### **Required Reading and Textbook(s):**

**Computer Organization and Architecture, 11th edition**

**Author: William Stallings**

**ISBN-13: 9780134997193.**

**Note:** A student of this institution is not under any obligation to purchase a textbook from a university-affiliated bookstore. The same textbook may also be available from an independent retailer, including an online retailer.

**Supplemental Material:** The course textbook will be supplemented with other materials including handouts, oral presentations, software demonstrations, PowerPoint presentations, etc.

## **COURSE REQUIREMENTS**

### **Course Requirements:**

Students are required to complete one midterm exam, one final exam, four class tests and five homework assignments/lab assignments. The topic of all exams and class tests will be declared on the Canvas portal.

Students are required to install software on their personal computers to write assembly language code. The instructor will provide detailed instructions in the second week of this course.

### *Class Tests*

There will be **four class tests** for this course. The class tests can be conducted in-class or online through the Canvas course website. Each class test will be worth **60** points.

### *Exams*

There will be one midterm and one final exam. The midterm exam will contain **200** points, and the final exam will contain **200** points. The final exam will not be comprehensive for this course. Both exams will be conducted in class.

### *Assignments*

**Five** assignments (homework and lab assignments) will be given to the students. The due dates of these assignments will be posted on Canvas. Each assignment will be worth **60** points.

### *Course Discussions*

Following the course presentations is mandatory for this course. Response to course discussions will be counted toward class participation marks. Total class participation is worth **60** points. It is required to read all the required chapters every week during this semester.

### **Grading Criteria Rubric and Conversion**

The distribution of points for various student activities and the grading scheme are mentioned below:

<b>Student Activity</b>	<b>Quantity</b>	<b>Points</b>	<b>Total</b>
<b>Class Tests</b>	4	60	240
<b>Assignments</b>	5	60	300
<b>Midterm Exam</b>	1	200	200
<b>Final Exam</b>	1	200	200
<b>Discussions</b>	2	30	60
<b>Total</b>			1000

<b>Point Range</b>	<b>Letter Grade</b>
<b>1000-900</b>	A
<b>899-800</b>	B
<b>799-700</b>	C
<b>699-600</b>	D
<b>599-0</b>	F

### **Posting of Grades**

All students' grade will be posted on the Canvas Grade book, and students can monitor their

progress in this course using Canvas Portal. Students can expect to see their grades within two weeks of the closing of class tests, exams, and assignments. Students are expected to visit Canvas course webpage regularly to get any update regarding this course.

## COURSE OUTLINE AND CALENDAR

### Complete Course Calendar

The **tentative course outline** is mentioned below. All assignments, class tests, midterm and final exam due dates will be announced in the class.

Week	Date	Topic	Due
<b>1</b>	Week 1	Introduction to Course/ Syllabus	
		Introduction-Organization and Architecture	
<b>2</b>	Week 2	Computer Evolution and Performance	
		Number Systems	
<b>3</b>	Week 3	Introduction to Assembly Language and required software.	Assignment 1
			Class Test 1
<b>4</b>	Week 4	Difference between high-level and low-level programming languages	
		Computer Arithmetic and Digital Logic	
<b>5</b>	Week 5		
			Assignment 2
<b>6</b>	Week 6	Top Level View of Computer Function and Interconnection	
			Class Test 2
<b>7</b>	Week 7	Cache Memory and Internal Memory	
		Input and output of Computer system	
<b>8</b>	Week 8		
		Midterm Exam	Midterm
<b>9</b>	Week 9	Instruction Sets: Characteristics and Functions	Assignment 3
<b>10</b>	Week 10	Instruction Sets: Addressing Modes and Formats	
<b>11</b>	Week 11	Assembly Language Programming Concepts	
			Class Test 3
<b>12</b>	Week 12	Assembly Language Programming and practice sessions (Loops and branch)	Assignment 4
<b>13</b>	Week 13	<b>No Class</b>	
<b>14</b>	Week 14	Assembly Language Programming (procedure call and array access)	Assignment 5
			Class Test 4
<b>15</b>	Week 15	Assembly Language Programming Overview	
<b>16</b>	Week 16	Final Exam Overview and Final Exam	

## INSTRUCTOR POLICIES

### Policies related to grading

- All the assignments must be submitted before the posted deadline on the Canvas Course Website unless arrangements are made beforehand (at least **48 hours before** the deadline and the students need to send an email explaining the situation and providing necessary documentation).
- Assignments and class tests posted before the midterm exam **CANNOT** be completed/submitted after the midterm exam.
- Assignments more than **48 hours** late are subject to **20%** late penalty.
- Requests for **Incomplete grades**:
  - Incomplete grades will only be given in emergency or other extreme circumstances. Any request for an incomplete grade in this course must be approved by the course professor prior to **December 01, 2023**. Where possible, requests should be submitted in written form with reasons and must include an address and/or telephone number where you may be contacted throughout the following semester.
  - For a request for an incomplete grade to be considered, at least **70%** of the total coursework (**700 points**) has to be completed.
  - Finally, approval of an incomplete grade (**I**) is up to the **department chair** and **college Dean**, not only to the course instructor.

### Instructor's Personal Statement

- The instructor reserves the right to modify the course syllabus during the semester for the benefit of the students.
- The instructor reserves the right to supplement materials presented in the text with additional course material that may help the students to understand the topic better.
- The instructor reserves the right to modify grading policy rubrics. Any Change to grading rubrics will be applied to current and possible future assignments.
- The instructor will not accept any pending course assignments after **December 10, 2023**, in the Fall 2023 semester.

### Important University Dates:

Please visit the following link to access the 2023-2024 academic calendar:

<https://www.tamuct.edu/registrar/academic-calendar.html>

## TECHNOLOGY REQUIREMENTS AND SUPPORT

### Technology Requirements

This course will use the A&M-Central Texas Instructure Canvas learning management system.

**We strongly recommend the latest versions of Chrome or Firefox browsers.**

**Canvas no longer supports any version of Internet Explorer.**

Logon to A&M-Central Texas Canvas [<https://tamuct.instructure.com>].

Username: Your MyCT username (xx123 or everything before the "@" in your MyCT e-mail address)

Password: Your MyCT password

### **Canvas Support**

Use the Canvas Help tab, located at the bottom of the left-hand menu, for issues with Canvas. You can search the support articles or use the Email, Call, or Chat buttons at the bottom of the support pop-up to contact the Canvas Help Desk.

For issues related to course content and requirements, contact your instructor.

### **Online Proctored Testing**

Texas A&M University-Central Texas uses Proctorio for online identity verification and proctored testing. This service is provided at no direct cost to students. If the course requires identity verification or proctored testing, the technology requirements are: Any computer meeting the minimum computing requirements, plus web camera, speaker, and microphone (or headset). Proctorio requires use of the Chrome web browser with their custom plug in installed.

### **Other Technology Support**

For log-in problems, students should contact Help Desk Central, 24 hours a day, 7 days a week.

Email: [helpdesk@tamu.edu](mailto:helpdesk@tamu.edu)

Phone: (254) 519-5466

[Web Chat](http://hdc.tamu.edu): [<http://hdc.tamu.edu>]

*Please let the support technician know you are an A&M-Central Texas student.*

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## **UNIVERSITY RESOURCES, PROCEDURES, AND GUIDELINES**

### **Warrior Center for Student Success**

The Warrior Center for Student Success is a comprehensive academic support department at A&M-Central Texas, dedicated to fostering an environment of excellence and empowerment among its student body. The center offers a wide range of programs and services to ensure every student reaches their full potential, and is a haven for students seeking guidance, resources, and a strong support network to excel in their educational journey.

**ADA Access and Accommodations:** Texas A&M University-Central Texas ensures that students with disabilities have equal access to educational opportunities by providing appropriate accommodations and support services. If you believe you have a physical, learning or socio-emotional disability requiring reasonable accommodations, please visit [Access and Inclusion](https://www.tamuct.edu/student-affairs/access-inclusion.html) [<https://www.tamuct.edu/student-affairs/access-inclusion.html>] for more details or contact the Office of Access and Inclusion, WH-212; (254) 501-5836. Any information you provide is private and confidential.

**Success Coaching and Peer Mentoring:** Our experienced Success Coaches work one-on-one with students to develop personalized action plans, set academic goals, and build effective study strategies, time management skills, and resilience. Our Peer Mentors provide a valuable

support system, offering guidance, encouragement, and a relatable perspective to help students navigate their academic and personal challenges. For more details call 254-501-5836 or 254-501-5928 or visit [Academic Support](https://www.tamuct.edu/student-affairs/academic-support.html) [https://www.tamuct.edu/student-affairs/academic-support.html]. Click the link to schedule a session (virtual or in-person) with a success coach [bit.ly/3q7uB50](https://bit.ly/3q7uB50) or visit WH, 111.

**Testing Services:** We offer a secure and comfortable environment for students and members of the community to take courses and distance learning exams, as well as placement tests and professional certification exams. Our Testing Service also offers resources and support referrals for testing related challenges (test anxiety, learning disabilities, etc.) and supports all approved ADA accommodations. Call (254) 519-5830 or visit the [Testing Center](https://www.tamuct.edu/testing-center/) [https://www.tamuct.edu/testing-center/].

**Tutoring and Supplemental Instruction Services:** Our team of qualified Tutors and Supplemental Instructors assist students in various non-writing subjects, promoting academic comprehension and enhancing learning outcomes. Click the link to schedule a tutoring session with a TAMUCT tutor (virtual or in-person) or view tutor availability [bit.ly/43Q6wNz](https://bit.ly/43Q6wNz). You may also chat live with a remote tutor 24/7 for a variety of subjects through our partnership with Tutor.com, an online tutoring platform that is free to all TAMUCT students. To learn more please visit [Tutoring Services](https://www.tamuct.edu/student-affairs/academic-support.html#tutoring) [https://www.tamuct.edu/student-affairs/academic-support.html#tutoring] or call (254) 501-5836 or visit the Tutoring Hub in Warrior Hall, 111.

### **Academic Integrity**

Texas A&M University-Central Texas values the integrity of the academic enterprise and strives for the highest standards of academic conduct. A&M-Central Texas expects its students, faculty, and staff to support the adherence to high standards of personal and scholarly conduct to preserve the honor and integrity of the creative community. Any deviation by students from this expectation may result in a failing grade for the assignment and potentially a failing grade for the course. All academic misconduct concerns will be referred to the Student Conduct Office. When in doubt on collaboration, citation, or any issue, please contact your instructor before taking a course of action.

For more information regarding the [student conduct process](https://www.tamuct.edu/student-affairs/student-conduct.html), [https://www.tamuct.edu/student-affairs/student-conduct.html].

If you know of potential honor violations by other students, you may [submit a referral](https://cm.maxient.com/reporting.php?TAMUCentralTexas), [https://cm.maxient.com/reporting.php?TAMUCentralTexas].

### **Drop Policy**

If you discover that you need to drop this class, you must complete the [Drop Request](#) Dynamic Form through Warrior Web.

[https://federation.ngwebsolutions.com/sp/startSSO.ping?PartnerIdpld=https://eis-prod.ec.tamuct.edu:443/samlso&SpSessionAuthnAdapterId=tamuctDF&TargetResource=https

%3a%2f%2fdynamicforms.ngwebsolutions.com%2fSubmit%2fStart%2f53b8369e-0502-4f36-be43-f02a4202f612].

Faculty cannot drop students; this is always the responsibility of the student. The Records and Admissions Office will provide a deadline on the Academic Calendar for which the form must be completed. Once you submit the completed form to the Records and Admissions Office, you must go into Warrior Web and confirm that you are no longer enrolled. If you still show as enrolled, FOLLOW-UP with the Records and Admissions Office immediately. You are to attend class until the procedure is complete to avoid penalty for absence. Should you miss the drop deadline or fail to follow the procedure, you will receive an F in the course, which may affect your financial aid and/or VA educational benefits.

### **Pregnant and/or Parenting Students Rights and Accommodations**

Texas A&M University-Central Texas supports students who are pregnant, experiencing pregnancy-related conditions, and/or parenting. In accordance with requirements of [Title IX and related guidance from US Department of Education's Office of Civil Rights](#), the Associate Dean in the Division of Student Affairs, (254) 501-5909, can assist students who are pregnant, experiencing pregnancy-related conditions, and/or parenting by provide flexible and individualized reasonable accommodations. Students should seek out assistance as early in the pregnancy as possible through the [Pregnancy & Parenting webpage](#) [<https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html>]. For more information, please visit [Student Affairs](#) [<https://www.tamuct.edu/student-affairs/pregnant-and-parenting-students.html>]. If you would like to read more about these [requirements and guidelines](#) online, please visit the website [<http://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.pdf>].

[Title IX of the Education Amendments Act of 1972](#) specifically prohibits discrimination against a student based on pregnancy, childbirth, false pregnancy, termination of pregnancy, or recovery from any of these conditions [<https://www2.ed.gov/about/offices/list/ocr/docs/pregnancy.html>].

Students experiencing any form of discrimination due to any of these conditions are encouraged to reach out to the Title IX Coordinator, 254.519.5716, [titleix@tamuct.edu](mailto:titleix@tamuct.edu), Founders Hall 317B, or the Associate Dean of Student Affairs, 254.501.5909, Warrior Hall 105.

### **Title IX Rights and Reporting Responsibilities**

Texas A&M University-Central Texas is committed to creating a safe and open learning environment for all students. If you or another student has experienced any form of gender discrimination or sexual misconduct, including sexual harassment, sexual assault, dating/domestic violence, and/or sex-based stalking, help and support are available. Our university strongly encourages all members of our campus community to report incidents and seek support for gender discrimination and sexual misconduct through the Title IX Office. You may contact the Title IX Office at 254.519.5716, [titleix@tamuct.edu](mailto:titleix@tamuct.edu), Founders Hall 317B, or learn more by visiting the [Title IX webpage](#) [<https://www.tamuct.edu/compliance/titleix.html>].



Please be aware that that under [Title IX](#), [Texas Senate Bill 212](#), and [System Regulation 08.01.01](#), [https://policies.tamus.edu/08-01-01.pdf] all university employees are mandated reporters and are required to disclose information about suspected or alleged violations as listed above and defined in System Regulation 08.01.01. If the Title IX Office receives information about an incident, they will reach out to offer information about resources, rights, and procedural options as a member of the campus community. Although I have an obligation to report, you will, in most cases, control how your case will be handled. When working with the Title IX Office you will have access to resources and accommodations but also have the opportunity to express if you wish to move forward with an investigation. Our goal is to make sure you are aware of the options available to you as a student. Community members are not required to respond to this outreach.

If you or another student wishes to speak to a confidential employee who does not have this reporting responsibility, you can contact the [Student Wellness & Counseling Center](#), [https://www.tamuct.edu/student-affairs/student-counseling.html], 254.501.5955, or [swacc@tamuct.edu](mailto:swacc@tamuct.edu), located in Warrior Hall Room 207L or the Student Support Advocate, 254.501.5978 or [ssa@tamuct.edu](mailto:ssa@tamuct.edu), located in founder Hall Room 317D.

### **University Library & Archives**

The University Library & Archives provides many services in support of research across campus and at a distance. We offer over 350 electronic databases containing approximately 1,203,947 eBooks and 134,750 journals, in addition to the 96,879 items in our print collection, which can be mailed to students who live more than 50 miles from campus. Research guides for each subject taught at A&M-Central Texas are available through our website to help students navigate these resources. On campus, the library offers technology including cameras, laptops, microphones, webcams, and digital sound recorders.

Research assistance from a librarian is also available 24 hours a day through our online chat service, and at the reference desk when the library is open. Research sessions can be scheduled for more comprehensive assistance, and may take place virtually through WebEx, Microsoft Teams or in-person at the library. [Schedule an appointment here](#)

[https://tamuct.libcal.com/appointments]. Assistance may cover many topics, including how to find articles in peer-reviewed journals, how to cite resources, and how to piece together research for written assignments.

Our 27,000-square-foot facility on the A&M-Central Texas main campus includes student lounges, private study rooms, group workspaces, computer labs, family areas suitable for all ages, and many other features. Services such as interlibrary loan, TexShare, binding, and laminating are available. The library frequently offers workshops, tours, readings, and other events. For more information, please visit our [Library website](#)

[https://tamuct.libguides.com/index]

### **University Writing Center**

Located in Warrior Hall 416 and online, the University Writing Center (UWC) at Texas A&M University–Central Texas (A&M–Central Texas) is a free service open to all A&M–Central Texas students. The face-to-face hours of operation are from 10:00 a.m.-5:00 p.m. Monday and Thursday in Warrior Hall 416. Online tutoring is available Monday thru Thursday from 10:00 a.m.-5:00 p.m. and from 6:00-9:00 p.m. and on Saturdays from 12:00-3:00 p.m.

Tutors are prepared to help writers of all levels and abilities at any stage of the writing process. While tutors will not write, edit, or grade papers, they will assist students in developing more effective composing practices. By providing a practice audience for students' ideas and writing, our tutors highlight the ways in which they read and interpret students' texts, offering guidance and support throughout the various stages of the writing process. In addition, students may work independently in the UWC by checking out a laptop that runs the Microsoft Office suite and connects to WIFI, or by consulting our resources on writing, including all of the relevant style guides. Whether you need help brainstorming ideas, organizing an essay, proofreading, understanding proper citation practices, or just want a quiet place to work, the UWC is here to help!

Students may arrange a one-to-one session with a trained and experienced writing tutor by making an appointment via [WOnline](https://tamuct.mywconline.com/) [https://tamuct.mywconline.com/]. In addition, you can email Dr. Bruce Bowles Jr. at [bruce.bowles@tamuct.edu](mailto:bruce.bowles@tamuct.edu) if you have any questions about the UWC, need any assistance with scheduling, or would like to schedule a recurring appointment with your favorite tutor.

## **OTHER POLICY STATEMENTS**

### **A Note about Sexual Violence at A&M-Central Texas**

Sexual violence is a serious safety, social justice, and public health issue. The university offers support for anyone struggling with these issues. University faculty are mandated reporters, so if someone discloses that they were sexually assaulted (or a victim of Domestic/Dating Violence or Stalking) while a student at TAMUCT, faculty members are required to inform the Title IX Office. If you want to discuss any of these issues confidentially, you can do so through Student Wellness and Counseling (254-501-5955) located on the second floor of Warrior Hall (207L).

Sexual violence can occur on our campus because predators often feel emboldened, and victims often feel silenced or shamed. It is incumbent on ALL of us to find ways to actively create environments that tell predators we don't agree with their behaviors and tell survivors we will support them. Your actions matter. Don't be a bystander; be an agent of change. For additional information on campus policy and resources visit the [Title IX webpage](https://www.tamuct.edu/compliance/titleix.html) [https://www.tamuct.edu/compliance/titleix.html].

### **Behavioral Intervention**

Texas A&M University-Central Texas cares about the safety, health, and well-being of its students, faculty, staff, and community. If you are aware of individuals for whom you have a concern, please make a referral to the Behavioral Intervention Team. Referring your concern shows you care. You can complete the [referral](#) online

[<https://cm.maxient.com/reporting.php?TAMUCentralTexas>].

Anonymous referrals are accepted. Please see the [Behavioral Intervention Team](https://www.tamuct.edu/bit) website for more information [<https://www.tamuct.edu/bit>]. If a person's behavior poses an imminent threat to you or another, contact 911 or A&M-Central Texas University Police at 254-501-5805.

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