CSCI516.01B

Fundamental Concepts of Computing/Machine Organization
COURSE SYLLABUS: SUMMER II 2022
TR: 2pm-3:15pm JOUR 200

INSTRUCTOR INFORMATION

Instructor: Dr. Abdullah N. Arslan

Office Location: JOUR 206
Office Hours: W: 3:30pm-6pm

Office Phone: 903 468 3097
Office Fax: 903-886-5404

University Email Address: Abdullah.Arslan@tamuc.edu

Preferred Form of Communication: e-mail
Communication Response Time: 24 hrs

COURSE INFORMATION

Materials – Textbooks, Readings, Supplementary Readings

Textbook(s) Recommended

Assembly Language for Intel-Based Computers, 6th Edition, by Kip R. Irvine, Prentice Hall, ISBN-13: 978-0-13-6022212-1

The professor will make supplementary information for the course available in D2L Brightspace. These include class notes, assignments, PowerPoint slides, class announcements, the course syllabus, test dates, etc. The professor will announce in class when such information becomes available electronically. It is the student's responsibility to follow these announcements.

Software Required

Optional Texts and/or Materials

Course Description

Hours: 3
Fundamental Concepts in Computing and Machine Organization. Three semester hours. Concepts of assembly language programming and machine organization of a modern digital computer are presented. Students will have the opportunity to study machine addressing, stack operations, subroutines, programmed and interrupt driven I/O, machine organization and computer architecture at the register level. Students will utilize the 80x86 instruction set and will perform programming exercises. Prerequisite: CSCI 515 or programming experience in a higher level language.

In this course, concepts of assembly language programming and machine organization of a modern digital computer are presented. Students will have the opportunity to study machine addressing, stack operations, subroutines, programmed and interrupt driven I/O, machine organization and computer architecture at the register level. Students will utilize the 80x86 instruction set and will perform programming exercises.

The main objective of this course is to teach students basics of machine organization and how to program in assembly language.

Student Learning Outcomes

1. Students will demonstrate knowledge of the Binary, Decimal, Hexadecimal numbering systems be able to convert from one system to another and demonstrate knowledge of two's complement notation.

2. Students will demonstrate knowledge of basic Computer Organization: design logic; digital diagrams, and basic circuits and gates, and the link between Boolean functions, circuits, processor and machine code.

3. Students will demonstrate knowledge of the concepts of machine instructions; interrupts; assembly language programming, assembly, linking and running of a program; I/O devices; memory mapped I/O; assembly language addressing modes.

4. Students will demonstrate knowledge of the concepts of Jumps, flags, subroutines, procedures, and stacks.

5. Students will demonstrate knowledge of the concepts of Arrays, addressing modes and Floating Point memory management, indirect addressing.

6. Students will demonstrate knowledge of the concepts of advanced procedures, local variables, stack parameters, strings, and links to higher level languages.

COURSE REQUIREMENTS

Minimal Technical Skills Needed

Students must know using the learning management system. Students must have basic programming knowledge in a high level programming language.

Instructional Methods

The instructor will cover the topics in the lectures. He will prepare relevant in-class problems, programming assignments and practice questions that prepare students for exams. Approaches to assignments will be discussed in class.

Student Responsibilities or Tips for Success in the Course

Students must regularly log into the course website, and participate in discussions and in-class problems in lectures. They need to deliver the assignments on time.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

Final score will be out of 100, and the above percentages will be applied to student's total score to determine the letter grade.

Assessments

Midterm Exams	
Exam 1	25%
Exam 2	25%
Assignments	20%
Final Exam	30%

The *syllabus/schedule are subject to change.*

In-class practice problems, assignments, and tests will include questions on each of the student learning outcome listed earlier.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:
https://community.brightspace.com/s/article/Brightspace-Platform-Requirements

LMS Browser Support:
https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

The *syllabus/schedule are subject to change.*

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu**.**

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

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COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

https://community.brightspace.com/support/s/contactsupport

Interaction with Instructor Statement

The instructor will respond to your questions within 24 hrs unless there are exception situations such as sickness.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures/Policies

In-class practice problems: are to be solved independently during the class period. Sample solutions will be discussed together. Any class material missed by the student is the student's responsibility to acquire.

Tests: The two in-class tests will be given roughly at regular intervals. Students will be informed of the test dates around a week in advance. The test will take no more than one class period and will be given at the scheduled times only. No opportunity will be given to take the test at earlier or later times except in extreme cases as judged by the instructor.

Makeup: Except for extreme cases (as judged by the instructor), no individual makeup test will be permitted**.**

Assignments: Two assignments will be given. The returned work must be students' own work. The student is supposed to explain his/her work and to answer all questions about the work.

All tests are closed book.

During the lectures and exams laptops and phones must be switched off all the time.

Attendance:

From the Students' Handbook: *"Students are expected to be present for all class meetings of any course for which they are enrolled. Per University Procedure A13.02, effective September 1, 1996, students are responsible for learning about and complying with the attendance policy stated in the catalog, Student's Guidebook, and/or faculty syllabus. It is the prerogative of the faculty to drop students from courses in which they have accrued excessive absences as defined in the course syllabus."*

The instructor will take the attendance at the beginning of each lecture and only once.

If a student misses 3 or more lectures without legitimate reasons, the instructor will make the student drop the course. If this is not possible, the letter grade of 'F' will be assigned to the student.

Lateness and leaving class early may count as an absence and are not acceptable unless you are ill or a family emergency exists. If you miss a lecture, it is your responsibility to obtain notes from a fellow student. Office hours are not meant for individual lectures. Any class material missed by the student is the student's responsibility to acquire.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:
https://www.britannica.com/topic/netiquette

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01.
http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf

Students with Disabilities-- ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services
Texas A&M University-Commerce
Gee Library- Room 162
Phone (903) 886-5150 or (903) 886-5835
Fax (903) 468-8148
Email: studentdisabilityservices@tamuc.edu
Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Nondiscrimination Notice

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url:
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

COURSE OUTLINE / CALENDAR

TOPICS AND ACTIVITIES BY WEEKS

WEEK	TOPIC	Practice Problems and Assignments	Exams
1	Basic concepts including number systems, digital logic	In-class Practice Problems 1	
1	Assembly language fundamentals (e.g. basic elements of assembly language),	In-class Practice Problems 2	
2	Data Transfers, Addressing and Arithmetic (e.g. arrays)	In-class Practice Problems 3, Assignment 1 is posted	
2	Review		Exam 1
3	Procedures	Assignment 2 is posted	
3	Conditional Processing	In-class Practice Problems 4, Assignment 1 is due	
3	Review		Exam 2
3	Integer Arithmetic, Advanced Procedures (e.g. recursion)	In-class Practice Problems 5, Assignment 2 is due	
4	Review and discussions		Final Exam

If time permits some additional selected topics may also be covered.

There can be some modifications on the schedule based on agreements between the instructor and the students.

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