

# Computer Science Technology Department

## Houston Community College

### COSC 2425 – Computer Assembly Language

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To the Course: <https://eagleonline.hccs.edu/login/ldap>

Office Hours: Before class starts, or by appointment as needed

#### **Course Objectives:**

1. Be able to describe the information representation systems commonly used in digital computers; be able to represent integer numbers using the various signed and unsigned binary codes; be able to use the IEEE Floating-Point Standard to represent real numbers; and be able to perform basic integer and floating-point arithmetic operations.
2. Be able to explain the fundamental concepts of conventional computer organization, including the fetch-decode-execute cycle, data paths, clocks and buses, registers, and hardwired and micro-programmed control.
3. Be able to write basic programs in assembly language.
4. Be able to describe instruction set architectures, including instruction formats, instruction types, addressing modes, instruction-level pipelining and the difference between RISC and CISC architectures.
5. Be able to describe the basic concepts of contemporary memory systems, such as memory addressing, and memory hierarchy, including cache memory and virtual memory, and the various types of memory devices.
6. Be able to explain the operation of contemporary Input / Output systems, including bus communication and protocols, external storage devices, DMA, programmed I/O, interrupt-driven I/O, and current I/O performance optimization techniques.

#### **Student Learning Goals:**

Students who successfully complete this course will have demonstrated the ability to:

1. Understand the principles of computer architecture as applied to the Intel x86 processor families,
2. Understand data representation, including signed and unsigned integers, real numbers, and character data, understand conversion from decimal to binary, hexadecimal, octal, addition, subtraction, multiplication and division of binary numbers, 1s, 2s, complement, floating point arithmetic, logic circuit
3. Apply the concepts of basic Boolean logic to computer hardware and programming,
4. Be familiar with the syntax and constructs of assembly language,
5. Create, compile, link and run assembly language programs using the Microsoft Visual Studio Integrated Development Environment,
6. Construct programs using one or more of the following: sequence, selection, and repetition,
7. Use procedures and arrays,
8. Solve problems and create solutions using assembly language.

**NOTE: MEMINGITIS IMMUNIZATION REQUIRED FOR SPRING REGISTRATION**

Texas Senate Bill 1107 passed in May 2011, requires that new HCC students and former HCC students returning after an absence of at least one fall or spring semester who are under the age of 30 are required to present a physician-signed certificate showing they have been vaccinated against bacterial meningitis. Students will have to satisfy this requirement prior to enrollment. For more information and a list of exemptions, please go to <http://www.hccs.edu/hccs/admissions-registration-center/new-student-general-admissions-steps/submit-meningitis-documentation>

**Title IX of the Education Amendments of 1972** requires that institutions have policies and procedures that protect students' right with regard to sex/gender discrimination. Information regarding these rights are on the HCC website under Student-Anti-discrimination. Students who are pregnant and require accommodations should contact any of the ADA Counselors for assistance.

It is important that every student understand and conforms to respectful behavior while at HCC. Sexual misconduct is not condoned and will be addressed promptly. Know your rights and how to avoid these difficult situations. Log in [www.edurisksolutions.org](http://www.edurisksolutions.org). Sign in using your HCC student email account, then go to the button at the top right that says Login and enter your student number.

**EGLS3 -- Evaluation for Greater Learning Student Survey System**

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey of research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the survey as part of the Houston Community College Student System online near the end of the term.

**Eagle on line Delivery of Instruction:** All sections of the course taught by this instructor employ computerized internet delivery of course materials by using Eagle on line (educational delivery software). You will receive learning objectives, reading lists, some instruction materials, lab assignments, quizzes, and most of your exams using Eagle on line.

**Related Material:** This course requires the use of Sound Card, speakers, a microphone (if announced as needed), REAL PLAYER software (see: <http://csci.hccs.edu> under "Distance Ed Courses" then "Real One Basic Player" – The Basic Player is free), a C++ compiler software (We have three to pick from: one compiler is bundled with your text book, one is available free via the internet and we provide a free compiler within the course materials. More details are provided with the course materials.) and a word processing or text processing software (student's expense and students usually use Word 2007, Word 2003, Word Pad or Note Pad; all by Microsoft).

**Student Attendance/Participation is Mandatory:** As a Distance Education section of this topic, you must make satisfactory progress in this course. Students may be withdrawn, if in the opinion of the instructor, the student has fallen behind in their assignments and it is not reasonable to expect the student to complete the course during the semester. If you decide to quit participating in the course **before** the Last Day for Administrative/Student Withdraws,

You should see the Registrar and properly withdraw so that you will receive a W. If you quit participating in the course **after** the Last Day for Administrative/Student Withdraws, you will receive an F. This will apply to all students. Incomplete grades are rarely given.

Thus, you need to be in regular contact with your instructor during the semester. Most of this contact will be electronically within the Eagle on line environment. The final exam will be done at the Distance Education testing sites (with more information to be announced as test days approach). Again if you have a question please contact your instructor.

### **Eagle online Student User ID**

Your Eagle on line login user ID will be **your HCC User ID (sometimes referred to as the “W” number)**. All HCC students have a unique User ID. If you do not know your User ID you can look it up by visiting the HCC home page:

- From [www.hccs.edu](http://www.hccs.edu), click on “Login Help” under the “Student System Sign In” field
- Then click on “Retrieve User ID” and follow the instructions.

Or use the direct link: <https://hccsaweb.hccs.edu:8080/servlets/jclientservlet/sauat/?cmd=start>

The default student password is “distance.” Students will then be prompted to change their password after their first login. Please visit DE Technical Support FAQs if you need additional assistance with your log in.

### **HCC Course Withdrawal Policy**

The State of Texas has begun to impose penalties on students who drop courses excessively. That is, if you repeat the same course more than twice, you have to pay extra tuition. In addition, as of Fall 2007, students are limited to no more than SIX total course withdrawals throughout their educational career at a Texas public college or university.

To help students avoid having to drop/withdraw from any class, HCC has instituted an Early Alert process by which your professor will “alert” you and Distance Education (DE) counselors that you might fail a class because of excessive absences and/or poor academic performance. Contact your DE professor regarding your academic performance or a DE counselor to learn about what, if any, HCC interventions might be available to assist you – online tutoring, child care, financial aid, job placement, etc. – to stay in class and improve your academic performance.

**In order to withdraw from your DE class, you MUST contact your DE professor and this must be done PRIOR to the withdrawal deadline to receive a “W” on your transcript.** If you do not withdraw before the deadline, you will receive the grade that you have earned by the end of the semester. Zeros averaged in for required assignments/tests not submitted will lower your semester average significantly, most likely resulting in a failing grade (“F”). If you do not feel comfortable contacting your professor to withdraw, you may contact a DE counselor. However, please do **not** contact both a DE counselor and your DE professor to request a withdrawal; either one is sufficient.

### **DISTANCE EDUCATION ADVISING AND COUNSELING SERVICES:**

Much DE student information can be found on the DE Student Services website: [www.de.hccs.edu](http://www.de.hccs.edu). Advising or counseling can be accomplished by telephone at 713/718-5275 - option # 4 or via email at [decounseling@hccs.edu](mailto:decounseling@hccs.edu). Student Services Associates (SSA) and Counselors can assist students with admissions, registration, entrance testing requirements, degree planning, transfer issues, and career counseling. In-person, confidential sessions, can also be scheduled, if necessary, as HCC counselors maintain a local referral base in order to provide appropriate referrals to students with personal or family issues that may require long-term solutions.

**INTERNATIONAL STUDENTS:** International Students are restricted to ONLY ONE online/distance education class per semester. Please contact the International Student Office at 713-718-8520 if you have additional questions about your visa status.

### **STUDENTS WITH DISABILITIES:**

"Any student with a documented disability (e.g. physical, learning, psychiatric, vision, hearing, etc) who needs to arrange reasonable accommodations must contact the appropriate HCC Disability Support Service (DSS) Counselor at the beginning of each semester. Faculty is authorized to provide only the accommodations requested by the

#### **Disability Support Services Office.**

Students who are requesting special testing accommodations must first contact the appropriate (most convenient) DSS office for assistance:

System: 713.718.5165

Central: 713.718.6164 – also for Deaf and Hard of Hearing Services and Students Outside of the HCC District service areas:

**Northwest:** 713.718.542, **Northeast:** 713.718.8420, **Southeast:** 713.718.7218, **Southwest:** 713.718.7909

After student accommodation letters have been approved by the DSS office and submitted to DE Counseling for processing, students will receive an email confirmation informing them of the Instructional Support Specialist assigned to their professor.

### **VIRTUAL CLASSROOM CONDUCT:**

As with on-campus classes, all students in HCC Distance Education courses are required to follow all HCC Policies & Procedures, the Student Code of Conduct, the Student Handbook, and relevant sections of the Texas Education Code when interacting and communicating in a virtual classroom with faculty and fellow students. Students who violate these policies and guidelines will be subject to disciplinary action that could include denial of access to course-related email, discussion groups, and chat rooms or being removed from the class.

**Instructor Participation:** I will normally enter the course via Eagle on line every business day (Monday thru Friday unless it's a Holiday), however for a variety of reasons (sick, out of town, computer broken, internet connection not working, etc.) I may not enter the course on a given day. Often I will enter the course more than once on a business day. I will usually enter the course on Saturday morning, but not always. Sometimes, I will enter the course on Sunday. Thus, it might appear that you have 24/7

instructor response and you could wrongfully expect immediate response to all your needs. I will try to respond quickly and you should normally have a response within 3 business days, so don't panic if you don't get a response in 30 minutes.

I will normally grade any lab assignments and quizzes requiring my involvement each weekend. On-line exams will normally be graded by the day after the window of availability is closed. However, on-campus exams (the final exam) will normally take 7 to 10 days after the window of availability to be graded because

I will read all Eagles on line "Mail" every time I enter the course and normally will respond that same day. Once in a while a student's question requires a couple of days for me to research his question to allow me to formulate a good (correct) response.

**Final Grade:** Your final grade will be provided to students by the Registrar and are available shortly after the end of the semester. There is no other official method of posting a student's final grade. Final grades will not be given over the telephone by either the professor or any HCCS employee. If you need an official transcript see the registrar and request a transcript be sent after posting of the grades for the semester.

During the course, your progress (quiz, lab and exams scores) will be reported to you via our "Grades" feature within Eagle on line. You should check this regularly to confirm your progress in the course is current.

**Telephone and Email Address:** Make sure that your address is correct on your student ID card and that the system has your correct telephone and email information.

**TEXTBOOKS:**

The Essential of Computer Organization and Architecture, Linda Null and Julia Lobur, Jones and Bartlett. 4<sup>th</sup> Edition ISBN 978-1-284-04561-1

**Examinations & Final Grade Determination:**

- 12 Assignments will be assigned, but will not be graded)
- 240 points      12 weekly Quizzes, each 20 points
- 100 points      One course Project and presentation
- 260 points      Two exams each 130 points
- **300 points      Final Exam**

Based on the points above a final grade will be calculated and awarded as follows:

A –	800 - 900	Points
B -	700 – 799	Points
C -	600 – 699	Points
D -	500 – 599	Points
F -	000 – 499	Points

One special note:

**Failing the final will cause you to fail the course regardless of what your grades have earned on the assignments, quizzes and other exams.**

If you do not pass the final, I assume you have not truly learned the materials in the course, thus you will fail the class.

The “Participation” portion of your grade will be determined by several factors, including (but not limited to):

- Entering the Eagle on line course regularly – at a minimum of every 3 days (twice a week).
- Answering all “Mail” every time you enter the course
- Reading new “Announcements” as they appear
- Reviewing new “Calendar” entries as they appear
- Reading all items posted to the “Discussions”
- Participating in “Discussions” as requested or appropriate
- Interacting with at least two email buddies – more information later in the course
- Using “Chat” rooms (which also have white boards) as needed
- Providing general information for the “Roster”
- Providing a picture for the “Roster” (optional)

The instructor has a feature called “Tracking” that shows your activity in the course by date and time. Do not try to bluff your way and lie about being seriously involved in learning course materials and have me look at the tracking and call your bluff. (See the bolded information about procrastinating within the next syllabus item.)

**Course Organization:** I have some supplement material as modules for you on eagle online. This material is just as enforcement for you to learn the materials. These materials are not necessarily match with your quizzes.

I like to add that, you will need to set for yourself a regular study schedule that should include between 12 to 15 hours per week. Remember this is a 2 lecture,4 lab course that would normally meet on-campus for 6 hours of instructor contact per week. With an additional 1 to 1 ½ hours per week out of class for study for every hour in class (6 to 9 additional hours) your total hours of weekly participation in this course should be between 12 to 15 hours. Some of it spent on-line in Eagle on line and most spent doing reading, study and lab assignments (all of which can be done outside of Eagle on line). It is suggested that you have a regular schedule (set dates and times – 3 to 4 times a week) to both visit the Eagle on line course on-line and to study. **Procrastinating by not having a regular schedule of time to do an on-line Internet delivered Distance Education course is the number one cause of poor performance and thus of student withdrawal.**

If you run into difficulty, I can help you get back on track quickly. As with all good professors, I am concerned with having an appropriate student completion rate for any course that I teach. Overcoming problems helps to get more students to complete the course having learned the material well.

I gather notes, and helpful material from many sources (books, online materials, etc.) I have developed different modules to help you understand the material in your text book, these materials are require for you to read, and these are as reading material. I have link to the source on Eagle Online. **YOU ARE NOT ALLOWED TO PRINT, SAVE, AND DISTRIBUTE ONLINE MATERIALS. YOU MUST PURCHASE COURSE TEXTBOOK.**

**Deadlines:** Assignments, and quizzes should to be completed before the exam. Each lab assignment has its own due date and if submitted **after due date there is 15% reduction/day in grade.**

**Missed Exams:** An exam missed either on-line or on-campus creates a serious problem. You can have a makeup exam Only with Departmental Approval and legitimate proof.

**Schedule:** The tentative schedule is outlined below. Any changes will be announced within the Eagle on line course.

WEEK	TOPIC AND EXAMS	DUE DATE
1	Course information, Computer Organization and Computer Architecture, Chapter 1	<i>Provided on CANVAS</i>
2	Computer Organization and Computer Architecture, Chapter 1	<i>Provided on CANVAS, Quiz 1</i>
3	Data Representation in Computer System, Chapter 2	<i>Provided on CANVAS, Quiz2</i>
4	Data Representation in Computer System, Chapter 2	<i>Provided on CANVAS, Quiz 3</i>
5	Boolean Algebra, Logic Circuit, Karnaugh Map, Chapter 3	<i>Provided on CANVAS, Quiz 4</i>
6	Boolean Algebra, Logic Circuit, Karnaugh Map, Chapter 3	<i>Provided on CANVAS, Quiz 5</i>
<b>7</b>	<b>TEST 1 ----- COVERS CHAPTERS 1 - 3 (FOR TEST DATE VISIT YOUR COURSE ON CANVAS)</b>	
8	MARIE: An introduction to a Simple Computer, Chapter 4	<i>Provided on CANVAS, Quiz 6</i>
9	MARIE: An introduction to a Simple Computer, Chapter 4	<i>Provided on CANVAS, Quiz 7</i>
10	A Closer Look at Instruction Set Architectures, Chapter 5	<i>Provided on CANVAS, Quiz 8</i>
11	A Closer Look at Instruction Set Architectures, Chapter 5	<i>Provided on CANVAS, Quiz 9</i>
12	Memory, Type of Memory , Virtual, Cache Memory Chapter 6	<i>Provided on CANVAS, Quiz 10</i>
13	Memory, Type of Memory , Virtual, Cache Memory Chapter 6	<i>Provided on CANVAS, Quiz 11</i>
<b>14</b>	<b>TEST 2 ----- COVERS CHAPTERS 4 - 6 (FOR TEST DATE VISIT EAGLE ONLINE)</b>	
15	Input /Output and Storage System, Data Transmission Mode, Chapter 7	<i>Provided on CANVAS, Quiz 12</i>
16	Focus on Data Compression Chapter 7	
<b>For Final Exam (comprehensive) Day, Time and Location Contact Your Instructor</b>		