CS-301 Computer Architecture
Syllabus

Course Information

Class Days:	Tuesday, Thursday
Class Time:	10:50 a.m. – 12:05 p.m.
Class Room:	PTC-301
Instructor:	Dr. Iyad A. Ajwa E-mail: iajwa@ashland.edu Office: PTC-203 Office Phone: 419.289.5798
Office Hours:	Monday – Friday: 8:15 a.m. – 9:00 a.m. Monday & Wednesday: 9:00 a.m. – 10:00 p.m. & 1:00 p.m. – 3:00 p.m. Tuesday & Thursday: 1:30 p.m. – 3:00 p.m. and by appointment.

Course Materials

- **Required Textbook:** Essentials of Computer Organization and Architecture, Third Edition, by Linda Null and Julia Lobur, ISBN-13: 9781449600068, ©2012 by Jones and Bartlett Publishers.

Course Description

An introduction to the characteristics of computer systems at the digital logic and the organization levels.

Student Outcomes

Computer Architecture is a computer science core course. It introduces the student to digital logic including combinational and sequential logic, Boolean algebra, and logic gates. In addition, CPU design, control unit design, bus & memory organization, and I/O implementations will be covered in details. Students who complete *Computer Architecture* should be able to perform the following tasks:

1. Write and debug simple programs using assembly code.
2. Explain the principles underlying the design and development of computer systems for a variety of purposes.
3. Trace the influences of important computing developments (such as compiler technology, networking, the web, multimedia, safety, security) on the architecture of computer systems.
4. Outline the architectural features of a modern computer system.

Student Assessment Criteria

Overall student performance will be assessed using homework assignments (20%), class tests (60%), and the final examination (20%).

- **Homework Assignments** will be posted on Angel and you will be notified by email once an assignment becomes available. Homework assignments vary in length and complexity. They should be done by the announced deadlines. Late assignments will be penalized 20% for the first day and 10% per calendar day after that. No late homework assignments will be accepted once the graded assignment has been returned to the rest of the class. There will be no exceptions. It is your responsibility to do your work on time.

- **Examinations:** Three (3) in-class tests will be given during the course of the semester. Make-ups will be given if the student misses a test on the scheduled date for a legitimate reason **and** prior arrangements with the instructor are made. A make-up exam must be taken before the graded exam is returned to class. Below is a schedule for all in-class tests. Please note that dates of class tests are subject to change. Any changes will be announced in class.

TEST I:	Thursday	February 9, 2012
TEST II:	Thursday	March 15, 2012
TEST III:	Thursday	April 12, 2012

- **The Final Examination** will be comprehensive. The following date and time of the Final Examination is announced by the Registrar's Office and cannot be changed except as outlined in the Student Handbook. Do not make any plans that would prevent you from taking the final exam at the scheduled time. All students must take the final exam.

Wednesday May 2, 2012 (10:30 a.m. – 12:30 p.m.)

- **Letter grades** will be assigned according to the following grading scale:
(100 ≥ A ≥ 93) (93 > A- ≥90) (90 > B+ ≥ 87) (87 > B ≥ 84) (84 > B- ≥ 80) (80 > C+ ≥ 77)
(77 > C ≥ 74) (74 > C- ≥70) (70 > D+ ≥ 67) (67 > D ≥ 64) (64 > D- ≥ 60) (60 > F ≥ 0)

Course Guidelines

- **Teaching Methodology:** Material will be presented in class through lectures and assigned readings in the textbook. Class notes and miscellaneous material will be made available on Angel as appropriate. Students are encouraged to actively participate in class discussions. Homework assignments will be used to reinforce your understanding of the concepts presented. As with most computer science (and many other) classes, a substantial part of learning occurs outside of class. It is common to spend more than two hours studying outside of class for every hour spent in class. Find a study group to work with on a regular basis. You are encouraged to study for exams together and to discuss the problems on the homework assignments together. However, each student will write and submit their own solutions to the homework assignments.

- **Academic Integrity** is an important element of effective learning. All students are expected to read, understand, and follow the Academic Integrity Policy specified in the Ashland University Student Handbook. For exams, this means that students may not give or receive assistance on the exam (except from me). For graded homework assignments, students are permitted to work in groups and share information freely. However, copying another student's solution on individual assignments is a violation of the policy (and defeats the purpose of doing the assignments) and is not permitted. If you do not understand how to do an assignment, contact me by telephone or email or come by my office, and I will be happy to assist you in a way that will increase your understanding of the assignment. Forms of academic dishonesty will be handled in accordance with University policy. The minimum punishment for plagiarism, cheating or other academic integrity violations is a zero on the exam or assignment on which the violation occurred. The maximum punishment is a grade of "F" for the course.

- **Student Accommodations:** Students with documented disabilities who require academic adjustments for this class are requested to contact me to discuss accommodations. While not required, it is in the best interest of the student to have this conversation early in the semester. In order to receive academic adjustments, paperwork from Disability Services must be provided to document this need. Disability Services is located in 105 Amstutz, extension 5953.

- **Class attendance** is expected, and you are strongly encouraged to attend every class. In the event that you must miss a class, however, you alone are responsible for selecting a fellow student to collect a copy of any materials distributed during your absence and to pass along any information presented, including homework assignments and announcements of exams.

- **Course Outline:** The following is a tentative course schedule. Dates are subject to change.

Week	Topic	Reading Assignment	Week	Topic	Reading Assignment
1	Introduction (6)	Chapter 1	9	Spring Break	
2			10	MARIE, A Simple Computer (9)	Chapter 4
3	Data Representation (9)	Chapter 2	11		
4			12		
5			13	A Closer Look at ISAs (6)	Chapter 5
6	Boolean Algebra and Digital Logic (9)	Chapter 3	14		
7			15	Memory and I/O (6)	Chapter 6 Chapter 7
8			16		