

## COMP 278 COMPUTER ARCHITECTURE

1. INSTRUCTOR: JOEY LAWRENCE, PH.D.

**Office:** Dobbs 105  
**Office hours:** Tuesday 12:30pm-1:30pm  
Friday 12:30pm-2:30pm  
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### 2. COURSE OVERVIEW

This course covers binary number and codes, logic elements, combinational and sequential logic, and architectural design of a computer using these elements.

**Recitation/Lab/Credit:** 3/2/4  
**Dates:** September 6-December 9, 2011  
**Recitation:** Dobbs 308. Tuesday, Thursday.  
278-01: 8am-9:15am  
278-05: 11am-12:15pm  
**Lab:** Went 004. Friday. 278-02: 8am-9:50am, 278-06: 10am-11:50am  
**Required text:** Tanenbaum, Andrew. *Structured Computer Organization, 5th Edition*, Prentice Hall, 2005.  
**Prerequisite:** COMP201 (Computer Science II)

2.1. **Topics.** The topic schedule suggests course pacing. **Holidays are in bold.**

Week	Topics	Read Chapter(s):
September 6	1 Binary Numbers, Floating point numbers	A, B
September 13	2 Introduction to architecture	1
September 20	3 Computer Systems Organization	2
September 27	4 Computer Systems Organization	2
October 4	5 Digital Logic	3
October 11	6 Digital Logic	3
October 18	7 Microarchitecture	4
October 25	8 Midterm grades available, Microarchitecture	4
November 1	9 Instruction set architecture	5
November 8	10 Instruction set architecture, <b>Veteran's Day</b>	5
November 15	11 Operating System level	6
November 22	12 Assembly language level, <b>Thanksgiving</b>	7
November 29	13 Parallel Architectures	8
December 6	14 TBA	
	15 Final Exam	

## 2.2. Course learning outcomes.

- Design logic gates and implement them
- Solve Boolean algebraic equations
- Understand the micro architecture level
- Design of combination and sequential logic circuits
- Know the difference between RISC and CISC machines
- Convert numbers in four number systems: binary, decimal, hexadecimal and octal
- Understand memory organization
- Understand input and output organization
- Understand instruction parallelism and parallel architectures
- Understand De Morgan's Laws

**2.3. Instructional Methodologies.** *Teaching* means engaging *learning* through practice or correcting mistakes. Class time will be devoted to practice and critique.

## 3. POLICIES

**3.1. Attendance Policy.** I expect regular, punctual attendance to every meeting. With documentation, I will excuse absences from athletics, conferences, funerals, illness, and jury duty.

- After 3 unexcused absences, you will receive an attendance warning.
- After 6 unexcused absences, you will be withdrawn from the course.
- <http://www.wit.edu/catalog/2011-Catalog/academic-policies/Attendance.html>

**3.2. Grading Policy.** The following are out of a total of 2600 points total.

Activity	Count	Points each	Total Points
Labs	10	100	1000
Assignments	5	100	500
Participation	40	15	600
Exams	2	250	500

## 3.3. Wentworth Grading System.

Letter	Definition	Weight	Grade
A	Student learning and accomplishment far exceeds published objectives and student work is distinguished consistently by its high level of competency and/or innovation.	4.00	96-100
A-	objectives and student work is distinguished consistently by its high level of competency and/or innovation.	3.67	92-95
B+	Student learning and accomplishment goes beyond published objectives and student work is frequently characterized by its special depth of understanding, development, or innovative experimentation.	3.33	88-91
B	objectives and student work is frequently characterized by its special depth of understanding, development, or innovative experimentation.	3.00	84-87
B-	Student learning and accomplishment meets all published objectives and student work demonstrates the expected level of understanding, and application of concepts introduced.	2.67	80-83
C+	and student work demonstrates the expected level of understanding, and application of concepts introduced.	2.33	76-79
C	and application of concepts introduced.	2.00	72-75
C-	Student learning and accomplishment based on the published objectives were met with minimum passing achievement.	1.67	68-71
D+	objectives were met with minimum passing achievement.	1.33	64-67
D		1.00	60-63
F	Student learning and accomplishment based on the published objectives were not sufficiently addressed nor met.	0.00	< 60

**3.4. Drop/Add.** The drop/add period for day students ends on Friday of the first week of classes. Dropping and/or adding courses is done online. Courses dropped in this period are removed from the student's record. Courses to be added that require written permission, e.g. closed courses, must be done using an Add/Drop Form that is available in the Student Service Center.

Non-attendance does not constitute dropping a course. If a student has registered for a course and subsequently withdraws or receives a failing grade in its prerequisite, **then the student must drop that course**. In some cases, the student will be dropped from that course by the Registrar. However, it is the student's responsibility to make sure that he or she meets the course prerequisites and to drop a course if the student has not successfully completed the prerequisite. The student must see his or her academic advisor or academic department head for schedule revision and to discuss the impact of the failed or withdrawn course on the student's degree status.

**3.5. Make-up policy.** Students who are legitimately absent, whether planned or not, can make up for materials missed. Notify the instructor well in advance of planned absences. Provide supporting documentation for unplanned absences. Minutes are available at: <http://bit.ly/COMP285Minutes>

**3.6. Academic Support.** The Learning Center assists all Wentworth students with academic challenges in the areas of math, science, technical courses specific to majors, and writing. The Learning Center is a supportive and safe learning environment for students looking to improve or maintain their academic standing. In this student-based learning environment, students can receive individual help with their studies, meet and work in study groups, or go on-line to find resources to assist them in meeting their goals for academic success. It includes tutors in many subjects, online writing assistance and workshops.

Make appointments at <http://www.wit.edu/Academics/Resource/>. They are located in Beatty 402, and offer FREE tutoring. Please make an appointment if you need extra help.

**3.7. Academic Honesty statement.** Students at Wentworth are expected to be honest and forthright in their academic endeavors. Academic dishonesty includes cheating, inventing false information or citations, plagiarism, tampering with computers, destroying other people's studio property, or academic misconduct. See the academic catalog for a full explanation.

**3.8. Student Accountability statement.** Cheating and plagiarism will result in a grade of zero for violators and accomplices. The second violation will result in an "F" for the course for violators and accomplices. Removal from the course, Institute suspension or expulsion are also potential penalties for violations.

**3.9. Disability Services statement.** Any student who thinks s/he may require a disability-related accommodation for this course should contact me privately to discuss your specific needs. Disability Services coordinates reasonable accommodations for students with documented disabilities. They are located in Watson Hall 003 (the Counseling Center) and can be contacted at 617-989-4390 or <mailto:counseling@wit.edu>. For more information on acceptable documentation and the Disability Services process, visit the Disability Services website at <http://www.wit.edu/disabilityservices>.

**3.10. College of the Fenway Students.** If you are enrolled in this course through COF Cross Registration, notify your course instructor. Please provide her/him with your email address to be sure that you receive course information in a timely way. You should also discuss how to access online applications that might be used in the course. Please note that cross registered students who wish to drop or withdraw from this course must complete the necessary paperwork according to the Wentworth calendar.