

COURSE SYLLABUS
COSC 3327
Computer Architecture
Dr. Tim McGuire
3 Semester Hours
Spring Semester 2017

Section 01 – AB1-204, 2:00 - 3:20 p.m., TTh;

Office: AB1-212G

Office Hours: 10:00 – 11:50 a.m. MWF; 12:00 – 1:50 p.m. TTh; other times by arrangement

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Catalog Description: This course is a continuation of Computer Science 2329. It is a study of computer systems organization and systems programming. Uni- and multi-processor, SMP, parallel and distributed systems are studied.

Prerequisite: COSC 2329

Methodology: Lecture with outside laboratory assignments. The examinations will cover the material in the lectures, and will require that the student understand, apply, and extend that knowledge.

Objectives: This course will be a continuation of the treatment of computer architecture begun in COSC2329. The student in this course will:

- apply the basic principles of combinational and sequential logic
- understand the internal functions of a computer system
- describe how a computer system connects to the outside world
- use a formal description language to describe machine structures
- use assembly language to control a simulated machine
- describe and distinguish between CISC and RISC architectures

Textbook:

- David A. Patterson, *Computer Organization and Design, The Hardware/Software Interface*, Elsevier Science, 2014.

Grading: There will be 2 major exams during the course of the semester. Each of these will count as 20% of the total grade. Makeup exams must be scheduled with the professor within a week of the missed exam. A makeup exam will not necessarily cover identical material to the missed exam, and may be of a different format and difficulty level. There will be a final exam which will count as 30% of the grade. There will be several homework and lab assignments which will count as 30% of the grade. Any written reports will be graded for grammar, spelling, style, and so forth, as well as for technical content, completeness, and accuracy.

Grading Scale: The following grade scale is used:

$90 \leq A \leq 100$

$80 \leq B \leq 90$

$70 \leq C \leq 80$

$60 \leq D \leq 70$

$0 \leq F \leq 60$

Absences: See <http://www.shsu.edu/syllabus/>

Academic Integrity: See <http://www.shsu.edu/syllabus/>

Proper Classroom Demeanor: See <http://www.shsu.edu/syllabus/>

Americans with Disabilities Act: See <http://www.shsu.edu/syllabus/>

Visitors in the Classroom: See <http://www.shsu.edu/syllabus/>

Tentative Course Schedule:

WEEK	TOPICS
1	Introduction; logic gates
2	Circuits, Boolean algebra, K-maps
3	Special Purpose logic elements, sequential logic
4	Flip-flops, applications of sequential elements
5	Computer arithmetic
6	Instruction set architecture, MIPS
7	CPU Structure
8	RISC architectures
9	Example RISC architectures, ARM
10	Buses and I/O
11	Peripheral Devices
12	Memory Technology
13	Multiprocessing and alternative architectures
14	Operating System Support
15	Other topics