**COURSE SYLLABUS**
**COSC 3327**
***Computer Architecture***
**Dr. Tim McGuire**
**3 Semester Hours**
**Spring Semester 2018**

**Section 01** – AB1-204, 2 – 3:20 TTh;
**Office**: AB1-212G
**Office Hours**: 10:00 – 11:30 a.m. MTWThF;. 12:30 -2:00 TTh; other times by arrangement
**Office Phone**: (936) 294-1571
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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 25% of the grade. There will be several homework and lab assignments which will count as 35% 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 ≤ A ≤ 100**
**80 ≤ B < 90**
**70 ≤ C < 80**
**60 ≤ D < 70**
**0 ≤ F < 60**

**Absences:** In accordance with University Policy (http://www.shsu.edu/students/guide/polpro/attendance.html), regular attendance is required; however, no points will be awarded or subtracted based on your attendance. You are responsible for all material covered in every class, regardless of whether you attended or not. It is your responsibility to obtain notes, assignments, etc., from fellow class members if you miss a class.

**Academic Integrity:** All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The university and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials. No cheating on an examination or assignment is allowed. A score of zero will be given to the student if such a case occurred.

**Proper Classroom Demeanor:** Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. Please turn off or mute your cellular phone and/or pager before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers, sleeping, talking among each other at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result, minimally, in a directive to leave class or in being reported to the Dean of Students for disciplinary action in accordance with university policy.

**Americans with Disabilities Act:** According to University policy requests for accommodations must be initiated by the student. A student seeking accommodations should go to the Counseling Center and Services for Students with Disabilities (SSD) for instructions

**Visitors in the Classroom:** Occasional visiting of classes by responsible persons is allowed with prior arrangement with the instructor, as long as it does not interfere with the registered members of the class or the educational process.

**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 |