Computer Architecture  
Department of Computing Sciences  
Fall 2017

A. **COURSE INFORMATION**
   
   **Course number/section:** COSC2334.002  
   **Class meeting time:** Mondays, Wednesdays, and Fridays from 11:00 to 11:50 AM  
   **Class location:** Center for Instruction Room CI108  
   **Course Website:** TBD

B. **INSTRUCTOR INFORMATION**
   
   **Instructor:** David R. Thomas  
   **Office location:** Center for Instruction Room 319  
   **Office hours:** Tuesday and Thursday 3:30-5:30 PM  
   Wednesday 2:30-3:30 PM, or by appointment  
   **Telephone:** 361-825-2475  
   **E-mail:** david.thomas@tamucc.edu  
   **Appointments:** at lecture, through email, by serendipity (please knock)

C. **COURSE DESCRIPTION**
   
   **Catalog Course Description**  
   An overview of computer architecture, which stresses the underlying design principles and  
   the impact of these principles on computer performance. General topics include design  
   methodology, processor design, control design, memory organization, system organization,  
   and parallel processing.

D. **PREREQUISITES AND COREQUISITES**
   
   **Prerequisites:** COSC 1435, and MATH 2305.  
   **Corequisites:** none

E. **REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES**
   
   **Required Textbook(s):** Computer System Architecture (3rd Edition) by M. Morris Mano,  
   **Optional Textbook(s) or Other References:** none  
   **Supplies:** none
F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

By the end of this course, students should be able to:

1. Understand standard definitions and terms relating to the subject matter.
2. Understand the various digital components used in the organization and design of digital computing devices.
3. Be familiar with the steps used in the design of a basic computer, including the processor.
4. Understand abstract classifications of machines including accumulator machines, stack machines and general purpose register machines.
5. Understand different instruction types (including arithmetic, data movement and control), instruction formats and addressing modes.
6. Be familiar with internal data representation schemes.

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Lecture and discussion, examination topic review discussions, written examinations

H. MAJOR COURSE REQUIREMENTS AND GRADING

Course grades will be determined by three examinations whose contents will be guided by the previously described learning outcomes. The examinations will consist of definitions, problems and examples selected from the course textbook and related material. A detailed list of examination topics will be distributed and thoroughly discussed in class prior to each examination.

Each examination will contribute equally towards the final grade. The examination average score will be used to assign grades using a traditional 90, 80, 70, 60 percent distribution for “A”, “B”, “C”, and “D”, respectively. The examinations will occur approximately during the sixth week, the twelfth week, and during the University-determined final examination period (Monday, December 12 from 4:30 until 7:00 PM.).

I. COURSE CONTENT/SCHEDULE

We will proceed guided by the schedule that follows.

Part I:

Weeks 1-2: Chapter 1: Digital Logic Circuits

Weeks 2-3: Chapter 2: Digital Components

Weeks 3-4: Chapter 3: Boolean Algebra and Combinational Networks
Weeks 4-5: Chapter 4: Register Transfer and Microoperations

Week 6: Exam 1-Review and Written Examination

Part II:
Weeks 7-8: Chapter 5: Basic Computer Organization and Design
Weeks 8-9: Chapter 7: Microprogrammed Control
Weeks 9-10: Chapter 8: Central Processing Unit

Week 11: Exam 2-Review and Written Examination

Part III:
Weeks 12-13: Chapter 9: Pipeline and Vector Processing
Weeks 13-14: Chapter 10: Computer Arithmetic
Weeks 14-15: Chapter 12: Memory Organization

Final Exam: In the usual meeting room, during the University-mandated examination period.
(Friday, December 8, 11:00 AM-1:30 PM)

J. COURSE POLICIES

• Everyone is expected to conduct themselves in a manner appropriate for University Scholars. Should you arrive late, please enter quietly.

• In addition, please do not hesitate to ask questions at any time during lectures.

K. COLLEGE AND UNIVERSITY POLICIES

• Academic Integrity (University)
  University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.
• **Classroom/Professional Behavior**  
  Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

• **Statement of Civility**  
  Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

• **Deadline for Dropping a Course with a Grade of W (University)**  
  I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with your academic advisor, the Financial Aid Office, and me, before you decide to drop this course. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. Please consult the Academic Calendar (http://www.tamucc.edu/academics/calendar/) for the last day to drop a course.

• **Grade Appeals (College of Science and Engineering)**  
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the
grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please call (361) 825-5816 or visit Disability Services in Corpus Christi Hall 116.

  If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
  [http://disabilityservices.tamucc.edu/](http://disabilityservices.tamucc.edu/)

- **Statement of Academic Continuity**
  In the event of an unforeseen adverse event, such as a major hurricane and classes could not be held on the campus of Texas A&M University–Corpus Christi; this course would continue through the use of Blackboard and/or email. In addition, the syllabus and class activities may be modified to allow continuation of the course. Ideally, University facilities (i.e., emails, web sites, and Blackboard) will be operational within two days of the closing of the physical campus. However, students need to make certain that the course instructor has a primary and a secondary means of contacting each student.

- **Academic Advising**
  The College of Science & Engineering requires that students meet with an Academic Advisor as soon as they are ready to declare a major. The Academic Advisor will set up a degree plan, which must be signed by the student, a faculty mentor, and the department chair. Meetings are by appointment only; advisors do not take walk-ins. Please call or stop by the Advising Center to check availability and schedule an appointment. The College’s Academic Advising Center is located in Center for Instruction 350 or can be reached at (361) 825-3928.

**K. GENERAL DISCLAIMER**

The course instructor reserves the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. Changes will be announced in a timely manner during regularly scheduled lecture periods.