Instructor:
Email: charles.allen@angelo.edu
Phone: 325-486-6780
Office: VIN 126

Office Hours: MTWR 13:00-14:00, or as needed

Course Information

Course Description
A study of the behavior of digital logic circuit elements, with an emphasis on applications in research instrumentation, industrial controls, and computer design.

Prerequisite and Co-requisite Courses
CS-2336 or CS-3304 or (PHYS-2326 and PHYS-2126)

Student Learning Outcomes
Upon completion of this course, students will be able to:

- Transform combinational logic information between truth tables, Boolean expressions, logic diagrams, schematic diagrams, and breadboard circuits.
- Transform sequential logic information between state tables and state diagrams.
- Transform integer numbers between signed and unsigned decimal, binary, octal, and hexadecimal representations.

Course Delivery
This is an online course offering that will be delivered via Blackboard.

Required Texts and Materials
Digital Design, Mano/Ciletti, 4th, 5th, or 6th edition
Technology Requirements
To successfully complete this course, students need to download and install the "Digital" logic simulator (a Java app), as well as access an HTML5 breadboard simulator on the web.

Communication
Faculty will respond to email and/or telephone messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

Written communication via email: All private communication will be done exclusively through your ASU email address. Check frequently for announcements and policy changes. In your emails to faculty, include the course name and section number in your subject line.

Virtual communication: Office hours and/or advising may be done with the assistance of the telephone, Collaborate, Skype, etc.

Grading

Evaluation and Grades
Course grades will be determined as indicated in the table below.

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Percent of Total Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worksheets</td>
<td>40</td>
</tr>
<tr>
<td>Midterm Exams</td>
<td>40</td>
</tr>
<tr>
<td>Comprehensive Final Exam</td>
<td>20</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

Grading System
Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.

The following grading scale is in use for this course:

- A = 90.00-100 points
- B = 80.00-89.99 points
- C = 70.00-79.99 points
- D = 60.00-69.99 points
- F = 0-59.99 points (Grades are not rounded up)
The instructor may, at his discretion, lower the boundaries between letter grades. The boundaries will never be raised above what is shown.

**Assignment and Activity Descriptions**

The course is split into three main topics. Each topic contains 3 to 4 modules corresponding to approximately one week of material during a regular 16-week semester. Each module has associated lecture materials, including a PDF of the presentation and perhaps videos or PDFs of the examples. Each module has several short, focused worksheets that may require writing solutions by hand, building a logic simulation using Digital, and building a breadboard simulation using Tinkercad.

The instructor will (hopefully) release all the modules within a topic at once. Each topic will have a single due date for all worksheets in all the modules in that topic, but worksheets will be graded as they come in. Worksheets may be turned in up to one day after the due date, at which point the associated Blackboard assignment becomes unavailable. Late worksheets will likely not be graded and returned before the associated midterm exam.

At the end of each topic, a midterm exam will be given, requiring both handwritten solutions and simulation solutions.

A comprehensive final exam will have the same format as the midterm exams, but is intended to be shorter.

**General Policies Related to This Course**

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)
- [Angelo State University Catalog](#)

**Academic Integrity**

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university’s [Statement of Academic Integrity](#).
Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student’s responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the Student Disability Services website. The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dallas Swafford  
Director of Student Disability Services  
Office of Student Affairs  
325-942-2047  
dallas.swafford@angelo.edu  
Houston Harte University Center, Room 112

Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 Grading Procedures for more information.

Plagiarism

Plagiarism is a serious topic covered in ASU’s Academic Integrity policy in the Student Handbook. Plagiarism is the action or practice of taking someone else’s work, idea, etc., and passing it off as one’s own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.
Student Absence for Observance of Religious Holy Days
A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 Student Absence for Observance of Religious Holy Days for more information.

Title IX at Angelo State University
Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Boone, J.D. You may submit reports in the following manner:

Online: www.angelo.edu/incident-form
Face to face: Mayer Administration Building, Room 210
Phone: 325-942-2022
Email: michelle.boone@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State’s policy please visit: www.angelo.edu/title-ix.
## Course Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Homework Due Date</th>
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</thead>
<tbody>
<tr>
<td>June 1 - June 8</td>
<td>Boolean Logic</td>
<td>end-of-day June 8</td>
</tr>
<tr>
<td>June 9</td>
<td>(review)</td>
<td></td>
</tr>
<tr>
<td>June 10</td>
<td>Midterm Exam 1</td>
<td></td>
</tr>
<tr>
<td>June 11 - June 17</td>
<td>Numbers and Combinational Logic</td>
<td>end-of-day June 17</td>
</tr>
<tr>
<td>June 18</td>
<td>(review)</td>
<td></td>
</tr>
<tr>
<td>June 19</td>
<td>Midterm Exam 2</td>
<td></td>
</tr>
<tr>
<td>June 20-June 26</td>
<td>Sequential Circuits</td>
<td>end-of-day June 26</td>
</tr>
<tr>
<td>June 27-28</td>
<td>(review)</td>
<td></td>
</tr>
<tr>
<td>June 29</td>
<td>Midterm Exam 3</td>
<td></td>
</tr>
<tr>
<td>June 30</td>
<td>(makeup work and review)</td>
<td></td>
</tr>
<tr>
<td>July 1</td>
<td>Comprehensive Final Exam</td>
<td></td>
</tr>
</tbody>
</table>

1. [https://www.angelo.edu/student-handbook/](https://www.angelo.edu/student-handbook/)
2. [https://www.angelo.edu/catalogs/](https://www.angelo.edu/catalogs/)
4. [https://www.angelo.edu/services/disability-services/](https://www.angelo.edu/services/disability-services/)
5. [https://www.angelo.edu/content/files/14197-op-1011-grading-procedures](https://www.angelo.edu/content/files/14197-op-1011-grading-procedures)
7. [https://www.angelo.edu/dept/writing_center/academic_honesty.php](https://www.angelo.edu/dept/writing_center/academic_honesty.php)
8. [https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of](https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of)