

**1. Course Title:**

**Advanced Digital Circuits**

**EET 372 – 4 Credits**

EET Program Requirement

Prerequisite: EET 371

This is a Technical content course under ABET Criterion 5

**2. Faculty Member Information:**

Instructor:

Office: Hebelers 101A

Phone: 509-963-1763

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**3. Course Description:**

Study of state machines, interfacing, programmable logic devices (PLDs), memory, and computer architecture. Digital systems are designed, assembled, and verified in the laboratory.

**4. Textbook and other required materials for the course:**

Floyd, Thomas L., *Digital Fundamentals*, 9<sup>th</sup> Ed, Pearson Education Inc., 2006

**5. Specific Learner and Expressive Outcomes and Assessment Strategies:**

ABET Outcome Criteria #	Learner Outcomes	Assessment
9.A.6.	1. The student will be able to design, analyze, and implement circuits using asynchronous and synchronous state machines.	The student will complete homework assignments, a written test, laboratory work, and write reports on laboratory work.
	2. The student will be able to explain the different types of semiconductor memory commonly used in digital systems.	The student will complete homework assignments and a written test.
3.d.	3. The student will be able to implement a digital logic circuit using programmable logic.	The student will complete homework assignments, a written test, laboratory work, and write reports on laboratory work.
	4. The student will be able to use manufacturer's data sheets to select appropriate digital logic circuits.	The student will complete homework assignments, a written test, laboratory work, and write reports on laboratory work.
	5. The student will communicate their development process, work, assumptions, and evaluations to their peers and instructor.	The student will write lab reports with a purpose, objective, results and appendices that contain the design and development process used in the laboratory.
3.e.	6. The student will cooperate with their teammates to achieve a desired conclusion	The student will evaluate their partners based on a questionnaire.

## 6. Course Topics and Schedule:

The schedule is subject to adjustment to meet the needs of the class. The readings are from the Floyd text.

Week of	Topic	Reading
	Asynchronous State Machines	Chapter 8
	Synchronous State Machines	
	Project Introduction	
	Mealy/Moore State Machines	Handout Exercise
	Registers	Chapter 9
	Programmable Logic	Chapter 11
	Exam 1, Memory	
	Bus Interfacing, Memory	Chapter 10
	Logic Families	Chapter 14
	Computer Architecture	Chapter 12
	A/D, D/A, Project Presentation	Chapter 13
	Final Exam Week	
	Final Exam 8:00-9:50 AM (Comprehensive)	

## 7. Grading:

Your final grade will be based on the number of points you earn during the quarter. There will be a total of 500 points possible. There will be one in-class exam worth 50 points and a comprehensive final exam worth 100 points. The remaining 350 points will come from homework and lab assignments. The grading scale is as follows:

A = Over 464 B = 415-434 C = 365-384 D = 315-334

A- = 450-464 B- = 400-414 C- = 350-364 D- = 300-314

B+ = 435-449 C+ = 385-399 D+ = 335-349 F = 299 and below

## 8. ADA Statement:

Students who have special needs or disabilities that may affect their ability to access information and or material presented in this course are encouraged to contact me or Robert Harden, ADA Compliance Officer, Director, ADA Affairs and Students Assistance on campus at 963-2171 for additional disability related educational accommodations.