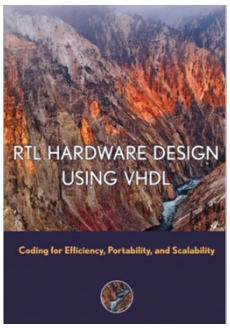
Course Syllabus for ENGR 433 – Digital Design
Walla Walla University - Seventh-day Adventist Higher Education
Autumn Term 2019



Course Information

- Class: 10am MWF (CSP164)
- Lab: 2-5pm Tuesday (CSP315)

Instructor Information

- Instructor: Dr. Curtis Nelson
- Office: 263 Chan Shun Pavilion
- Phone: 509-527-2076
- Email: curt.nelson@wallawalla.edu
  The default communication method between the instructor and students is through email via *mywwu* at your *standard WWU email address*. Please monitor this email address daily for any class updates.
- Web page: http://gab.wallawalla.edu/~curt.nelson/engr433/index 2019.html
- Office Hours: M – 9am, 2pm
  Tu – 1pm
  W – 9am, 2pm
  Th – 10am
  F – 9am
  Other times by appointment

Course Description

MSI, LSI, and programmable logic circuits and applications; analysis and design of synchronous and asynchronous circuits and systems; VHDL design and synthesis. Laboratory work required. (Course fees apply).

Objectives

- Build a solid basis for design by review of combinational and sequential circuits;
- Implement creative solutions to problems associated with synchronous state machines;
- Understand programmable logic and the role it plays in digital design;
- Utilize VHDL as the primary tool in learning design, simulation, and verification of complex digital logic systems;
- Develop the ability to attack large problems in a systematic and efficient manner.

Required Materials

- Textbook: *RTL Hardware Design Using VHDL*, Chu, Wiley, 2013

Course Schedule

A daily schedule of course topics are presented in a separate document that can be found on the course web page: http://gab.wallawalla.edu/~curt.nelson/engr433/common/outline 2019.pdf

Course Evaluation

Your instructor would appreciate constructive feedback regarding this course. Near the end of the quarter, you will be emailed a notice reminding you to submit a course evaluation for this class by going to your ***mywwu*** account and clicking on the *Campus Labs – Course Evaluation* option. Your responses are confidential and will be collected by the university via a third-party provider, Campus Labs. All student responses will be summarized and reported to instructor of record, their chair/dean, and academic vice president, after the term is over and the grades posted. You can also reach the course evaluation here:
http://wallawalla.campuslabs.com/courseeval

Course Grade

- Your final grade will be composed of the following four parts:
  - Homework, attendance: 20%
  - Lab: 35%
  - Project: 25%
  - Mid-term: 20%

- It is safe for you to assume that your minimum final grade based on raw scores will be computed as:
  - ≥ 90% A of some sort (A, A-)
  - ≥ 80% B of some sort (B+, B, B-)
  - ≥ 70% C of some sort (C+, C, C-)
  - ≥ 60% D of some sort (D+, D, D-)
  - < 60% F
- Your current grade in the class can be found anytime in D2L.

Course Requirements

Homework

The value of a solution to any problem is directly related to how well the solution is documented. To promote good problem-solving technique and assist those grading the assignments, I require that the guidelines presented by the Walla Walla University School of Engineering be followed. These guidelines are posted here: http://people.wallawalla.edu/~curt.nelson/hw/hwk_standards_2011.pdf. Additional requirements are as follows:

- Homework is due at the **beginning** of the class period (plus five minutes);
- Late homework will not be accepted unless prior arrangements have been made with the instructor.

Tests

There will be 1 mid-term test that will likely be closed book, with the exception of your calculator and minimal private reference.

Project

Students will work in teams to design, implement, and debug a project that will be assigned later in the quarter. The purpose of the project is to demonstrate the ability to apply the material learned throughout the quarter.

Laboratory

The laboratory sessions will be used for students to demonstrate their ability to put into practice the tools they are learning in the class and homework assignments. Students will work in teams to design, implement, and debug increasingly complex digital systems.

Returned Materials

All materials submitted by a student will be evaluated in a timely manner, typically within 1 week.

Progress Reports

Progress reports will be submitted for students identified "at risk" by the university.

Class Attendance

- Class attendance is a good indication of your commitment to learning the material and as such provides the instructor with visual feedback as to your learning and comprehension;
- Attendance may be used to form a part of your grade;
- Assistance to students can only be guaranteed during class, lab, and office hours;
- Students are responsible for all material presented and handed out in class or in the laboratory.

Academic Integrity

- See the Walla Walla University Academic Integrity Policy here: https://wallawalla.edu/academics/academic-administration/academic-policies/academic-integrity-policy/
- All work done in this class is to represent the understanding and work of the person submitting the work. While discussing the methods and principles relating to homework and lab work with your fellow students is strongly encouraged, it is unethical to copy another person's work, to copy from a solutions manual, or to read another person's work and follow it as an outline in completing your own. This constitutes cheating and is unfair to your career, profession, and most of all, your fellow students. **CHEATING IS REWARDED**. With an F. For the quarter. At the teacher's discretion.
- Remember – you are not just taking a class and earning a grade. You are training for a profession that holds the highest regard for the ethics of its members.

Accommodations for a Disability

- https://wallawalla.edu/dss
- If you have a physical or learning disability and need accommodations please contact Sue Huett in the Teaching Learning Center, Village Hall, or call extension x2366. Accommodations for documented disabilities are arranged through the Disability Support Services (DSS) office. This syllabus and course materials are available in alternate format as appropriate to the disability. Accommodations are not retroactive. If you do not declare the disability to the DSS office, you may not receive appropriate accommodations.

Emergency Procedures

An emergency procedures flip chart and evacuation routes are posted in classrooms near the door. Additionally, emergency procedures can be found at: https:/wallawalla.edu/security

University Core Themes/Values

University Core Theme	How the Core Theme is Actualized in this Course
Excellence in Thought	Students learn basic principles of digital logic systems through thoughtful homework and laboratory experiments.
Generosity in Service	This course has no service learning component or course requirements for service other than passion about such topics expressed by the instructor.
Beauty in Expression	Students document their learning through homework and laboratory exercises.
Faith in God	This course has no faith component other than passion about such topics expressed by the instructor.