

Course Syllabus For ENGR 354 – Digital Logic

Walla Walla University - Seventh-day Adventist Higher Education

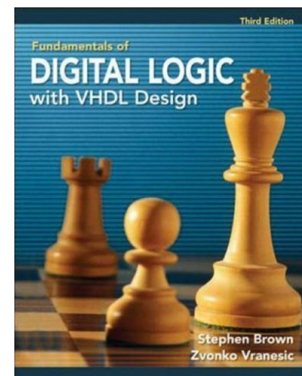
Autumn Term 2019

Course Information

- Class: 1pm MWF (CSP154)
- Lab: There will be some unscheduled lab time used for circuit board construction and debugging

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/engr354/index_2019.html
- Office Hours: 9am MWF, 10am Th, 1pm T, 2pm MW, other times by appointment



Course Description

Introduction to the theory and application of digital logic circuits, logic functions, logic gates, flip-flops, counters, state machines, and modern integrated logic families. Laboratory work required.

Objectives

- Learn basic logic functions and their role in larger systems;
- Learn to minimize implementation hardware;
- Learn sequential state machine design principles;
- Learn how to construct a simple logic board, and implement circuits on it.

Required Materials

- Textbook: *Fundamentals of Digital Logic with VHDL Design, 3rd Edition, Brown and Vranesic, 2009*
- Logic Kit - A kit containing logic parts and a printed circuit board will be provided to each student enrolled in the class. Each student will construct, test, and debug their board during the course of the quarter. Some homework problems will require the use of this board to validate the logic functions designed as part of the homework. The cost of the kit is included in the course fee.

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/engr354/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 three parts:
 - Homework, attendance: 35%
 - Mid-terms (2): 40%
 - Project: 25%
- 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.walla.walla.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.

Tests

There will be 2 mid-term tests that will likely be closed book, with the exception of your calculator and minimal private reference.

Project

Each student will design, construct, 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. Your logic kit will be used to construct and debug the project. Students will demonstrate their completed projects on the last day of the quarter (Friday of dead week).

Laboratory

- There will be some unscheduled lab time used for circuit board construction and debugging;
- More information on labs will be forthcoming in a timely manner.

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 <u>passion</u> 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 <u>passion</u> about such topics expressed by the instructor. |