

Syllabus for PHY 201: Digital Electronics – Spring 2019

Contact Info:

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Office Hours:

Mon. 10:00 - 11:00 (Holroyd 133 or Holroyd 124)

Wed. 10:00 - 11:00 (Holroyd 133 or Holroyd 124)

Fri. 10:00 - 11:00 (Holroyd 133 or Holroyd 124)

Or by appointment

Description:

The course covers some basic electronics, including resistors, capacitors, diodes, transistors and inductors. The course introduces the basic logic gates and demonstrates how they can be used to realize arbitrary truth tables (combinatorial logic). Simplification procedures (Karnaugh maps) are introduced. Digital representation and sequential logic circuits are covered as well. Emphasis is placed on computer components such as adders, comparators, multiplexors, memory, counters, and bus-related circuits.

Meetings:

Section: 21

Credits: 3

Place and time: Tuesdays & Thursdays 3:30 – 4:45 in H-153

Holidays:

MLK: Jan. 21

Spring break: Mar. 11-15

Easter: Apr. 19-22

Other important dates:

Classes start: Jan. 14

Mid-semester grades (for freshmen) due: Mar. 6

Last day to withdraw: Apr. 1

Classes end: May 3

Finals week: May 6 – 10

Commencement: May 12

Senior grades due: May 13

Other spring grades due: May 15

Course Calendar:

<http://www1.lasalle.edu/~blum/p201-cal-s19.htm>

Text:

The Pattern on the Stone, (W. Daniel Hillis, Basic Books, 1998) Available online through La Salle's library

Websites:

whatis.com

webopedia.com

geekgirls.com

howstuffworks.com

Learning Objectives:

Students should be able to

- Simplify circuits having resistors or capacitors in series or parallel combinations.
- Simplify truth tables and build circuits from them.
- Build and operate simulated circuits corresponding to basic units of a computer, such as adders, multiplexors, de-multiplexors, registers, shift registers, counters, ROM, RAM, etc.
- Simulate and identify the purpose of logic gate circuits.
- Represent and perform operations on binary numbers including unsigned, signed and floating point numbers.
- Use diodes, transistors and inductors in circuits.

Assessment:

Tests:	60%	3 on-line tests (the last during final's week).
Homework:	10%	One-page chapter summaries of Hillis book (done individually.)
Class:	5%	a mixture of attendance and participation
Lab:	25%	

In addition,

- Ordinarily, these labs will be done in teams of two.
- I reserve the right to select the teams, limit the number of labs that can be done with a particular partner, and so on.
- Unless stated otherwise, lab reports (one report per team) are due the week after the lab.
- Homework and lab assignments are due a week after they are assigned. Labs and homework submitted after the test on the relevant material will not be eligible for full credit.
- **Although labs are a team effort, each student is responsible for learning all of the skills and concepts.**
- Plagiarism, be it from a book, a web site or a fellow student, will be considered cheating. Copying simulation circuits is also considered cheating.
- You must cite the sources you use. Sentences directly quoted require quotation marks, and so on. Changing one or two words per sentence is still plagiarism.
- You are often allowed to bring in files from labs to use on the tests. It is recommended that both partners keep a copy of all relevant files. It might be useful to back them up. Also you should develop a systematic naming scheme so that you can find the file(s) you need on the test. **Also be careful about the version of the software used when creating files.**
- The plus/minus grading system will be used.
- Attendance will be taken.
- Absences, lateness, etc. will be reflected in the class portion of the grade. More than three unexcused absences may result in the lowering of a grade.
- I may request that before leaving lab early you must see me to show me your progress. If you are leaving early or not working on the labs during the lab period, it will count against you.
- It is your responsibility to keep copies of all of your assignments, tests and so forth at least until you receive your final grade for the course.
- The homework assignments (9 of them) will consist of a summary of a chapter in the book "The Pattern on the Stone". This will consist of a one-page Word document with normal margins (Top and Bottom: 1", Left and Right 1.25") using 12-pt Times New Roman font and double spacing (Format/Paragraph/Line Spacing: double). It must be obvious that you have read the chapter.

Grading scheme:

A	94 <= average
A-	91 <= average < 94
B+	88 <= average < 91
B	85 <= average < 88
B-	82 <= average < 85

C+	79 ≤ average < 82
C	76 ≤ average < 79
C-	73 ≤ average < 76
D+	70 ≤ average < 73
D	67 ≤ average < 70

Classroom Behavior:

While in the classroom, students should behave in a manner that is neither distracting to nor disrespectful to the professor or other students.

Cheating:

When using materials from a book, website, etc., the source must be cited, otherwise it is considered plagiarism. Claiming another's work as your own is cheating. A student caught cheating will receive a score of zero. Repeated cheating can result in a failing grade for the course. Asking another for help on a step or two in a many step homework is acceptable; handing in duplicate or nearly duplicate work is not. If you require a significant amount of assistance, you should seek my help. Finally, openly allowing your work to be copied is also cheating.

Be aware that if I am called as a job reference, that I may be placed in a position to comment on your trustworthiness and that such questions are phrased like “do you have any reason to ...” rather than “can you prove ...” A bad answer to a question like that can be very detrimental if you are going to be in a position handling sensitive data.

Student Resources:

<https://lasalle.instructure.com/courses/1772> includes links to
Student Guide to Resources, Rights and Responsibilities
Academic Integrity Policy
American Disabilities Act
IT Help Desk Support
Academic and Learning Support Services
Library