EE271  Review Problem 0

- As you wait for class to start, answer the following question:
  - Bob has $500, but owes $300 to Shirley in CA, who’s going to kill him if he doesn’t pay off the money in person in a week. Plane tickets to CA cost $175, while bus tickets cost $75. Based on this, finish off the following statement:

    If Bob buys a _______ ticket then Bob won’t be killed.
271: Introduction to Digital Circuits and Systems

- Professor Scott Hauck, EEB-307Q
  (hauck@ee.washington.edu)
  - Office Hours: stop by or email w/schedule for a slot


- TAs (EEB-361):
  - Umaymah Khan (umaymah@uw.edu)
  - Lev Kurilenko (levkur@uw.edu)

- TA Office Hours: most times most weekdays (check website)
Grading

- 20% - Homeworks
- 30% - Labs
- 20% - Midterm Exam
- 30% - Final Exam
- Homework is due at the end of class on the specified date.
- Late penalties:
  - <24 hours: -10%
  - <48 hours: -30%
  - <72 hours: -60%
  - >72 hours: not accepted
Joint Work Policy

- Labs will be done alone, homeworks in groups of 1-2.
  - Students may not collaborate on labs/projects, nor between groups on the specifics of homeworks.

- OK:
  - Studying together for exams
  - Discussing lectures or readings
  - Talking about general approaches
  - Help in debugging, tools peculiarities, etc.

- Not OK:
  - Developing a lab together
  - Checking homework answers between groups

- Violation of these rules is at minimum:
  - Loss of twice the points of that assignment.
  - Report of Academic Misconduct to Dean’s Level.
  - Potentially fail class, be expelled from UW.
Class & Lab Meetings

- Labs:
  - Each student assigned a lab kit, can work where-ever.
  - **There are no specific assigned lab times.**
  - TAs have large blocks of office hours to help with labs, homeworks, class material, etc.
  - Signups for lab demos will be posted shortly.

- Midterm: Thurs, Feb 8th, in class
- Final: Tues, March 13, 8:30-10:20
Motivation

- Readings: 1-1.4, 2-2.4

- Electronics an increasing part of our lives
  - Computers & the Internet
  - Car electronics
  - Robots
  - Electrical Appliances
  - Cellphones
  - Portable Electronics

- Class covers digital logic design & implementation
Example: Car Electronics

- Door Ajar (DriverDoorOpen, PassDoorOpen):

  \[ \text{DA} = \text{DDO} \text{ or } \text{PDO} \]

- High-beam indicator (lights, high beam selected):

  \[ \text{HBI} = \text{lights and HBS} \]
Example: Car Electronics (cont.)

- Seat Belt Light (driver belt in):
  \[ SBL = \text{NOT}(DBI) \]
  \[ DBI \rightarrow SBL \]

- Seat Belt Light (driver belt in, passenger belt in, passenger present):
  \[ SBL = \text{NOT}(DBI) \text{ or } (\text{NOT}(PBI) \text{ and } PP) \]
  \[ DBI \rightarrow SBL \]
  \[ PBI \rightarrow \]
  \[ PP \rightarrow \]
Basic Logic Gates

- **AND**: If A and B are True, then Out is True
  
  ![AND Gate Diagram]

- **OR**: If A or B is True, or both, then Out is True
  
  ![OR Gate Diagram]

- **Inverter (NOT)**: If A is False, then Out is True
  
  ![Inverter Diagram]