**Cal Poly Pomona Electrical & Computer Eng.**

**EGR 4810 Project Design Principles and Applications**

**Quiz 4 – engineering tools?**

* What are 3 good reasons to prototype
  + It can catch the issues that was not in the designer’s mind when it was designed
  + It can show the issues that did not come out during the simulation phase
  + It can exercise all the functionalities that may not be able to be done in a simulated environment
* What issues do you see with the y axis “relative vibration response” numbers, particularly if we wanted to convert it to logs
  + Negative linear number does not exists in log scale and 0 in linear is the “negative infinity” in log scale
* What is the advantage of using log axis rather than linear?
  + It can show changes in the order of magnitude which would be much more difficult doing in linear scale
* What is the implied accuracy of a 0.0387m measurement?
  + 3 significant figures
* When would you want to use scientific notation when recording measurements?
  + Very large or very small number
* What does isometric mean in a 3D plot?
  + Not favoring any particular angle, any axis is separated by another by 120 degree
* Can you give 2 examples where you would use a contour plot?
  + Altitude of a terrain
  + Temperature of a space
* Can you give an example where you would use a polar plot?
  + Brightness of an LED from different angle
* In what phase of a project does it make most sense to use estimation?
  + Brainstorming
* Can you give an engineering environment where graphical programming is often used?
  + Test environment
* What limits the effectiveness of a simulation environment?
  + The level of realism in the model in use
* How did engineers get spec sheets before the internet?
  + Data books
* What can MEMS be used for?
  + Actuator
* How can companies protect themselves from a competitor reverse engineering their products?
  + Patents and be secretive in the development stage
* What is the most useful engineering tool you have come across?
  + I have found Python to be useful. I have used it to perform computation on a data set and plot them and I have used it to verify my code and FPGA outputs.