Instructions:

* Replace the highlighted areas in yellow above with your own name, section and group numbers and correct dates,
* Watch the corresponding lab demo videos, review related materials from Week 1 lecture notes and Lab 1 manual,
* Provide your best answers to the following questions below. Add pages as needed,
* Convert this Word answer sheet into pdf format and submit to Canvas.

1. (10 points) What are the objectives of this lab in your own words?
2. (10 pts) What are the PASCO too kits? (10 pts) What components of PASCO tool kits are used in this lab?
3. (10 pts) What are the advantages of using the PASCO tool kits?
4. (15 pts) What experiments will you be doing in this lab? Provide descriptions in your own words.
5. (10 pts) What will your group be doing with the data collected in the lab? (4 pts) In terms of data processing, what are the two main techniques?

Total 65 points

Answers:

1. To gain experience with data collection and processing; To get used to the PASCO tool kits.
2. The PASCO tool kit is a kit to build structures, simulate environments in which we are going to test those built structures, and collect and process the data from the experiments using sensors and the provided software. 850 command center, wave driver, sonic motion sensor, point-tip needle displacement sensor, spring-loaded weight, Capstone software, Interface.
3. It is an easy-to-use kit which provides all the necessary components for performing static and vibration analysis. Therefore, the individual components and machineries communicate with one another and with the software efficiently since they all are from the same vendor.
4. For the first experiment, we are going to induce a vibration to the beam with the wave driver and collect data using the displacement needle and the motion sensor. For the second experiment, we are going to use the motion sensor to record motion; We are going to apply force with the wave driver and add a disturbance using the mass-spring system during the test. For the third experiment, we are going to use the motion sensor to record motion; We are going to apply force with the wave driver add a disturbance using the mass-spring system during the test, and apply random disturbances by hitting the end of the beam during the test.
5. We are going to export the data from the Capstone software as a .txt or .csv file for processing using MATLAB and further analysis. Smoothing and curve fitting.